AN ANALYSIS OF CONCEPTUAL METAPHOR IN THE PROFESSIONAL AND ACADEMIC DISCOURSE OF TECHNICAL COMMUNICATION

A Dissertation

by

MATTHEW AARON SHERWOOD

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2004

Major Subject: English

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ABSTRACT

An Analysis of Conceptual Metaphor in the Professional and Academic Discourse of Technical Communication. (December 2004)

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This dissertation explores the ongoing division between technical communication practitioners and academics by examining the conceptual metaphors that underlie their discourse in professional journals and textbooks. Beginning with a demonstration that conceptual metaphor theory as formulated by George Lakoff and Mark Johnson is a viable lens through which to engage in rhetorical (in addition to linguistic) analysis, the dissertation shows that academics and practitioners engage in radically different linguistic behaviors that result from the complex and often conflicting interplay of conceptual metaphors that guide their work. These metaphors carry assumptions about writers, texts, and communication that create covert tensions with the ethical value systems overtly embraced by both practitioners and academics.

Chapter II looks at two professional publications written primarily by technical communicators for an audience of colleagues, and demonstrates that practitioners tend to use metaphors primarily centered around machines and money, objectifying both documents and people and reducing the processes of communication to a series of

abstract mathematical influences. Chapter III looks at two technical communication journals with a more scholarly audience, and argues that academics participate in a much more convoluted conceptual system, embracing “humanist” language about communication that favors metaphors of human agency, physical presence, and complex social interaction; however, academics also participate in the abstracted, object-oriented metaphors favored by practitioners, leading to a particularly convoluted discourse both advocating and at odds with humanist social values.

Chapter IV shows the practical consequences of these conflicting conceptual systems in several widely-used technical communication textbooks, arguing that academics inadvertently perpetuate the division between industry and academy with their tendency to use conceptual metaphors that contradict their social and ethical imperatives. This research suggests that a more detailed linguistic analysis may be a fruitful way of understanding and perhaps addressing the long-standing tensions between academics and practitioners in the field of technical communication.

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INTRODUCTION

In August of 2001, the journal *Technical Communication* featured an article entitled "Cruel Pies: The Inhumanity of Technical Illustrations," co-authored by Sam Dragga and Dan Voss. In this article, Dragga and Voss argue that the field of technical communication suffers from an overly-narrow perspective on the ethics of visual display. Citing numerous scholarly and professional texts on the ethics of information presentation, they show that "the definition of ethics is almost always linked to distortion and deception" (p. 265), i.e., to questions of presenting information honestly. But this definition of ethics, according to Dragga and Voss, is far too limiting; they suggest that technical illustrators should aspire to a humanistic ethic that incorporates "the human element into the visual equation" (p. 271). Graphics, they argue, tend to be cold, impersonal presentations of "facts," exercises in the quantification of reality in tidy, easily digestible forms. However, an attempt at objectivity is an attempt to remove human emotions and wants from consideration; in most social and cultural settings, the dehumanization of issues and ideas in this way removes the most basic facets of human existence which should, insist Dragga and Voss, be highlighted, rather than ignored. As an example, they cite Charles Joseph Minard's well-known statistical graph of Napoleon's Russian campaign, which shows the movement of the French army while also depicting the gradual depletion of troops as a great dark band that snakes across

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This dissertation follows the style of *Technical Communication: Journal of the Society for Technical Communication*.

Europe, ever diminishing in size. This graph is generally considered a paragon of visual design; it is the object of praise in one of the most widely celebrated texts about visual design among technical communicators, Edward Tufte's *The Quantitative Display of Visual Information*, which lauds the elegant simplicity with which Minard conveys a wealth of information about the movement and gradual withering of Napoleon's grand army from 422,000 to 10,000 men.

It is the graph's elegant simplicity that Dragga and Voss find ethically problematic. Minard's impersonal, mathematical display shows no investment in or acknowledgement of the harsh and horrifying fact of 412,000 human deaths. To consider the events of the war without considering their human consequences is to ignore the issues and questions that should be of central importance to us.

Dragga and Voss argue that visual information designers reenact this ethical failure continuously. They cite other, more recent documents—U. S. Department of Labor charts showing fatal work injuries categorized by profession, and bar graphs from the Consumer Product Safety Commission showing the number of babies injured in walker-related accidents over a six-year span. Each of these graphics is a clear and simple depiction of numerical information—which is precisely the problem, according to Dragga and Voss. These "cruel" graphics tabulate human suffering "while leaving the victims themselves invisible" (p. 269).

The authors suggest that technical communicators stand in a uniquely favorable position to rectify the social inequity of such ethically bankrupt visual information display. Illustrators could, they argue, attempt to humanize these sorts of graphics and

engage readers and viewers in the ethical issues at stake. As examples, Dragga and Voss offer modified versions of the graphics in question: Minard's map with pictographs of progressively smaller groups of soldiers, a clip-art lumberjack overlaid on the work injuries bar graph, a picture of a baby precariously balanced on a flight of stairs in the Consumer Product Safety graph. Dragga and Voss admit their "improved" graphics are not yet perfect. They acknowledge that some kinds of emotionally charged images could easily stray into propaganda—but they insist that, in addition to issues of design and simplicity, technical communicators must "perceive sensitivity and efficacy as at least equally important, as reciprocal and recursive influences on the design of visual communication" (p. 272).

"Cruel Pies" was presented as a challenge to business-as-usual among practicing technical communicators; unlike many such challenges in professional journals, the response to this one was immediate and intense. In subsequent issues of the journal, the editors of *Technical Communication* published nine letters (far more than the usual one or two on a given issue) that strongly objected to the argument presented by Dragga and Voss. One reader argued that adding emotions to a graphic

> is dangerous and distorting… It introduces triviality, bias, and levity, while undermining trustworthiness, reliability, and authority. It is not my job as a technical writer to tell my audience how it should feel about a given piece of information; it is my job to relay information accurately, completely, and without bias (Letters 2001, p. 380).

Another reader complained that Dragga and Voss did violence to the elegance of Minard's diagram: "[they] took a simple, powerful message and decorated it, Martha Stewart style, with cute clip art garbage" (Letters 2002, p. 9). Comments from other readers were even more blunt, calling "Cruel Pies" "so off-base as to be almost laughable" (p. 9), "totally wrong-headed" (p. 10), a "cheapening and dumbing-down" of graphic design (p. 10), and "an embarrassment to the profession" (p. 10). Several objected to characterizing abstract numerical representation as necessarily cruel or inhumane; in fact, most respondents objected to the use of the word "cruel" at all, citing it as an unfair and manipulative label when applied to technical graphics. Numerous problems with the "improved" graphics created by Dragga and Voss were pointed out—including biased religious symbols, potentially confusing visual cues, and misleading titles (p. 10)—as the respondents suggested that important subtleties and considerations vital to graphic design were being overlooked in the article. The general consensus was that the kind of "humanizing" proposed by Dragga and Voss was out of place in technical illustrations, unavoidably biased in execution, and far more open to distortion, manipulation, and misuse than simple, unadorned graphics.

As a student of rhetoric and linguistics (and a teacher of technical communication), I am fascinated by this exchange for numerous reasons, but primarily for the (in many ways elementary) nature of its subject matter. Looking at the arguments used by both Dragga and Voss and their letter-writing detractors, it becomes apparent that their competing views of ethics are motivated by vastly different assumptions about the most basic issues of communication theory: the relationship between writer and

reader, the social functions of texts, the nature of language, and the processes of communication. They disagree about the nature of authority; Dragga and Voss insist upon appearing in the text in the form of ethical judgment, unashamedly voicing opinion and asserting an authoritative stake in issues, while the respondents would prefer, if they could, to keep themselves entirely from view in the text, granting readers access to information without the interference of the biased authorial voice. Dragga and Voss suggest that texts are places for public service and political action; the respondents denounce these activities in favor of reader autonomy, arguing that a text must be as free as possible from the author's subjectivity. The respondents clearly talk about language as reflective of the "real world" around them, capable of objectively showing that which is true, capable of being separated from human emotion. Dragga and Voss, on the other hand, seem less willing to separate language from the vast tangle of human interaction, instead arguing that its subjectivity is a vital, even desirable, quality.

These are old arguments among rhetoricians and composition theorists. In other contexts, we might even have dared to call them settled questions, were it not for their reappearance here. If we asked the letter writers whether they seriously thought language was a "windowpane," a transparent medium for communication, it is likely they would vigorously deny it. Quite the opposite—the letter writers would agree with Dragga and Voss that writers color their texts, and that readers always only have filtered, partial access the subject of a text; many of their letters bear out this understanding, frequently referring to the contextual nature of graphics. But still they vigorously take issue with Dragga and Voss, stirring up old debates about audience/writer relationships. Why?

We could look at this debate in a variety of ways; any number of different readings might reveal something interesting about the participants or the argument. However, one particularly fruitful method of analysis comes from a little-used corner of linguistics: conceptual metaphor theory. Throughout the argument between Dragga and Voss and their detractors, both sides rely fairly heavily upon metaphors in the process of making their points. Many of the metaphors are subtle—often hardly noticeable—but they are quite revealing, telling us some very interesting things about both Dragga and Voss and their respondents.

Dragga and Voss, for example, argue about Minard's illustration that "[t]he graphic isn't so much deceptive… as it is plainly inhumane—insensitive or indifferent to the human condition it depicts" (p. 266). Elsewhere, one graph "coldly displays human fatalities" (p. 268) while another "offers an emotionless tally" (p. 269) of similar information. They repeatedly refer to particular images as "cruel." Inhumane, insensitive, indifferent, cold, cruel: all are words about emotional states and attitudes, but always used in reference to the pictures, rather than writers or designers. The pictures even become representative of physical bodies: insensitive bodies that do not feel, indifferent voices that ignore suffering. It is a small thing, perhaps, but in an article that posits human sensitivity as a vital goal, there are only pictures that act like humans. Throughout much of the article, Dragga and Voss engage in this odd but consistent anthropomorphism, metaphorically attributing emotional distance (and its attendant ethical bankruptcy) to the graphics themselves, rather than the graphics' creators. The images attain a sort of intention and agency, becoming the primary actors in a drama of

moral failures. In many ways, Dragga and Voss have metaphorically removed all objects from their argument. There are no people being acted upon by things; only agents talking about other agents. The graphics themselves have metaphorical voices, their central failure consisting of telling stories in cruel ways rather than speaking with compassion.

The letter writers, on the other hand, talk about the same graphics quite differently. One writer notes that "[t]echnical illustrations are systems for comprehension" (Letters 2002, p. 9). Unlike the personified agents presented by Dragga and Voss, the graphic here becomes something more mechanical: a system, a collection of parts or attributes operating in concert toward a particular end. Another of the writers asserts that his goal is "to relay information accurately, completely, and without bias." He also argues that "technical illustrations should relate only data and information, never emotion" and that Dragga and Voss's additions to the graphics "do not enhance the information but actually distort it by adding a bias" (Letters 2001, p. 379). The letter writer concludes with advice to "[k]now your audience and deliver information designed specifically for that audience" (p. 380). In the first quote, the notion of "relaying" information carries numerous implications; aside from the electrical connotations of a mechanical relay, the word suggests the movement of something physical or tangible, information as an embodied *thing* being shuffled from writer to reader. He reinforces this, articulating a division between raw data and human emotional perceptions about it. Data is mutable but real, and has form and shape that can be obscured or distorted. While Dragga and Voss speak in terms of relationships and bodies, the letter writers talk of objects and motions.

We have already seen that Dragga and Voss and their respondents have competing conceptions of communication theory. But contrasting the different metaphors used by the participants in this debate not only reinforces these differences—it begins to reveal patterns that we must first become fully aware of before we can even hope to solve the differences or bridge the gaps between the entrenched dichotomies of "theory and practice," "academia and industry." The letter writers frequently mention the contextual nature of graphics, but nevertheless use metaphors that force them to treat language as contextless and absolute. Similarly, Dragga and Voss use metaphors of presence and action for something that their opponents discuss as physically remote and passive. In short, the two groups use metaphors that demonstrate wildly different conceptual systems underlying and reinforcing their disagreements about communication in general. We could say that the metaphors they use force them down mutually exclusive paths.

This article and the vehement responses it evoked are indicative of a recurrent set of issues in technical communication theory and practice. The exchange between Dragga and Voss and their detractors is not an isolated incident, nor does it take place on the fringes of the profession. The participants are well-known and often-published scholars, and *Technical Communication* is the most widely-read journal among practicing technical communicators and academics. This argument illustrates in miniature a certain kind of debate that appears frequently in the professional discourse: a call from the academy for action or change, followed by impatience and dismissal from industry, which cites frustrating abstractions and impracticalities that bear no resemblance to the

demands of the workplace. Scholars don't understand the demands of the working world, argue practitioners. Practitioners don't understand the potential of their social position to effect change in stagnant practices, respond academics. This pattern repeats itself over and over in the professional literature. And the problem is not only pervasive, it is persistent. Since the early days of technical writing instruction, there has been concern that writing teachers were disconnected from the concerns of industry (see Connors 1982, Souther 1989, and Kynell, 2000). In the last two decades, numerous books and articles have been devoted to exploring the differences between practitioners and academics,[1] but the same problems keep reappearing.

The impulse to find common ground between these two groups has been matched by a corresponding impulse to question and exacerbate some of the differences. One of the most influential scholars who has attempted to address this division is Carolyn Miller, whose work remains to this day some of the most insightful reflection upon the differences between academics and practitioners. In her 1979 article "A Humanistic Rationale for Technical Writing," Miller argued that technical writing teachers did not need to quietly accept a role for their profession that placed technical communication in a position subservient to the workplace; she pointed out that the rhetoric used to talk about technical writing was largely borrowed from the rhetoric of science, which is itself awash in "positivist" ideas contrary to the goals and values of the humanities.[2] She cited several features of positivism—concern with sensory data, logic, freedom from clouding emotions and metaphysics, elevation of mathematics over language—and argued that even though the fields of science and philosophy no longer hold so closely to this view

of the world, the rhetoric used to talk about those fields closely associated with the sciences still incorporated language that implied all of these things: absolute truths, an objective world, and the necessary filtering of human factors in order to observe and understand that world (pp. 612-613). She called for a technical writing teachers to adopt a different view of their purpose and their work, a view that embraced humanistic ideals and envisioned technical communication as an arena for social action.

Ten years later, Miller further refined her argument. In "What's Practical About Technical Writing," she again addressed the "the uneasy relation between nonacademic practice and academic instruction" (p. 18) by arguing that there have been, historically, two senses of the word "practical." The low sense of practicality is exemplified in the handbook tradition, and is focused on performing tasks by rote, independent of any sort of theory. In contrast, the high sense is descended from Aristotle's discussions of *praxis* and concerns "human conduct in those activities that maintain the life of the community" (p. 15). Her argument, at the time, was that teachers still thought about technical writing and taught it as a low form of practice—as a sort of rote activity that could be mastered and performed easily, tailored for students who would need certain basic skills in the workplace. She argued that the technical communication classroom ought to be focused instead on the high sense of practicality, on "practical rhetoric as a matter of *conduct* rather than of production, as a matter of arguing in a prudent way toward the good of the community rather than of constructing texts" (p. 23).

While Miller's call for a new vision of practice appears to have taken hold within the academic community, it would seem, based on the practitioner response to Dragga

and Voss, there has been not been a corresponding shift in thinking among students educated in technical communication who have moved on to work in industry. The level of incompatibility between the two groups remains fixed and intractable, and the reasons for the split remain unsolved. I would like to suggest that conceptual metaphor theory offers us a pathway into this tangle of competing assumptions, values, and agendas. As we saw earlier, metaphor analysis is capable of revealing patterned ways of thinking and tracing connections between seemingly dissimilar moments in a text; in its most formal realizations, conceptual metaphor theory—the exploration of those metaphors which not only permeate our everyday language but also operate at a fundamental level within human thought processes and mental schemas—offers a potent approach for exploring just the sorts of problems that persist in the field of technical communication. This is an unusual undertaking, both an odd way to talk about technical writing and an odd way to put metaphor theory to work, but I believe it offers several advantages over other kinds of analysis. Current studies of issues in technical communication tend to be dominated by discussions of classroom practice and the history of various rhetorical and composition theories from which technical communication education has largely developed; to the extent that these studies come from technical communication scholars within the academic community, they often overlook practitioner concerns or dismiss them out of hand. Conceptual metaphor studies, on the other hand, originates within various branches of cognitive linguistics and philosophy which are, to a great degree, removed from the immediate rhetorical, cultural, and practical issues that beset research in technical communication. Moreover, because it is concerned at a more general level

with the nature of human language development and function and the inner workings of the mind, the study of conceptual metaphor is somewhat removed from the particular kinds of writing and communication issues technical writing scholars debate. This remoteness from the object of study offers the possibility of a broader perspective.

We are left, then, with two relevant issues must be addressed: the status of conceptual metaphor theory as a unified field of inquiry, and the extent to which metaphor has already been discussed in technical communication theory.

A Brief Overview of Metaphor Theory

The oldest definition of metaphor, which has remained fairly static for much of the history of language study, treats it as a mere rhetorical trope, or a simple figure of speech. Aristotle set this standard in the *Rhetoric* and the *Poetics*, in which he described metaphor as "the transference of a name from the object to which it has a natural application" (*Poetics*, p. 57). He hailed metaphor as a particularly persuasive trope, and he offered numerous examples for its use both in poetry and in public debate; his definition is what we still find in introductory literature anthologies and rhetoric handbooks, and remains the popular understanding of metaphor. It is only in the early 20th century that scholars in fields of philosophy, linguistics, and psychology have regained interest in metaphor and that definitions of it have become more complex. Even the term "metaphor" has become difficult to define because we use it to refer to two separate but corresponding phenomena—the rhetorical (and more-or-less conscious) mechanics of metaphor creation and recognition in everyday language, and the cognitive (and more-or-less unconscious) processes of conceptual metaphor in human thought.

In the early 1950's, philosopher Max Black outlined a set of three basic categories of metaphor theory that remain useful for understanding this field. At that time in the American academy, philosophers and scientists were beginning to treat metaphor as a seriously problematic issue in their fields: if your interest is to describe the real world correctly and precisely, then figurative language is potentially a distraction. Black, in contrast, embraced the metaphor as a useful tool for intellectual pursuit. In building this argument to defend the place of metaphor in academic inquiry, Black outlined three basic "views" of metaphor.

The most common understanding of metaphor Black characterized as the *substitution view*. Essentially unchanged from Aristotle's definition, the substitution view suggests that a metaphor is the simple switching of one term for another, and that metaphor is literally translatable into regular language. For example, the phrase "Man is a wolf" (one of Black's favorite illustrations) can be literally translated as "Man is fierce" or "Man is predatory" without losing anything important from the metaphoric version. This is the view, argued Black, that philosophers have tended to favor, because it allows metaphor to be addressed in terms of truth-conditionality—that is, it allows a sort of mathematical precision about interpreting language.

Black's second group of theories he dubbed the *comparison view*. In some ways a subset of the substitution view, the comparison view treats metaphor comprehension as a more complicated process; it suggests that a metaphor is understood as an abbreviated analogy, an enthymematic statement that can be translated based on understood attributes that the parts of the metaphor share in common. Thus, "man is a wolf" would

be understood as "man is like a wolf in certain respects, such as fierceness and predatory nature, but not in others, such as hairiness and having four legs”—which the hearer must then work out by looking for perceived similarities between the two terms being compared. Such a metaphorical statement assumes universally understood “facts” about men and wolves, and thus can “fail” if the person who generates the metaphor and the person who interprets it do not share identical understandings.

Both of these views are, however, problematic, because they overlook a number of factors about metaphor use in everyday language. Paul Ricoeur (1984) argues that both views place three problematic limitations on ways to think about metaphor. First, they treat metaphor as a word-level phenomenon (“transferring a name from one thing to another”), ignoring the prospect that similar phenomena can occur at the level of the phrase or sentence; this limits metaphor to the level of stylistic ornamentation, precluding investigation into more complex linguistic functions (for example, at the semantic level), and has influenced many theorists to think of metaphor as simple statements that can be judged as truth-conditional or not. Second, both views characterize metaphor as a deviant use of “proper” language, (calling one thing by a name that "rightfully" belongs to another), thus adopting what Carolyn Miller would call a positivist view of language that has remained deeply entrenched within rhetoric and linguistics until relatively recently—the path to greater knowledge is to describe and understand the world, and language, if used precisely, is capable of directly referencing and clearly communicating objective facts about the real and the true. In this system of thought about language, metaphor is a clever oddity, somewhat interesting, notable

because of its unusual nature, but has no place in the more important studies (like science, mathematics, philosophy, etc.). This perspective has discouraged exploration of the function of metaphor in those fields farther removed from the study of language. Thirdly and finally, both views suggest that metaphor functions specifically by virtue of similarities between two ideas, again precluding investigation into the subtle interplay of similarity and difference in metaphoric language. Many metaphors involve a more complex relationships among their parts, and involve more than two components. (For example—linguists like to discuss statements such as "that surgeon is a butcher," which draws some of its meaning from differences as well as similarities.) All three of these limitations inspired by the substitution and comparison views are significant, and (argues Ricoeur) have continued to place tight constraints on all discussions of metaphor during the 20th century.

Black is responsible for the third and final theory of metaphor, which he named the *interaction view*. This view, which Black based on the work of I. A. Richards,[3] treats metaphor as relying not on preexisting similarities in the mind, but rather on the creation of new meaning appropriate to a certain context. In "man is a wolf," what we know about men and about wolves interacts to form a new meaning, not precisely like either originally, and which in turn alters our understanding of both men and wolves (p. 41). People in different contexts might interpret the metaphor in slightly varying ways, but the difference is only important if one considers the metaphor a simple factual statement that is either true or not—which Black did not; he argued that metaphor could be very useful despite its linguistically slippery nature. Black's interaction view marks an

important moment in metaphor studies and a major step toward current research: the observation that metaphor creation and processing relies heavily upon contextual factors, and that all terms in the metaphor are altered in the comparison.

Black's ultimate goal was to define metaphoric thinking as one aspect of the larger "archetypes" or models that figure importantly in human thought. He argued that science and philosophy were shot through with metaphor and that metaphor tends to color any semblance of objectivity, but, unlike most of his colleagues at the time, he argued that this was not only desirable but actually quite important for the advancement of scientific and philosophical inquiry. Approaching problems from different metaphorical perspectives, he argued, is a vital step in developing knowledge:

> A memorable metaphor has the power to bring two separate domains into cognitive and emotional relation by using language directly appropriate to the one as a lens for seeing the other; the implications, suggestions, and supporting values entwined with the literal use of the metaphorical expression enable us to see a new subject matter in a new way. The extended meanings that result, the relations between initially disparate realms created, can neither be antecedently predicted nor subsequently paraphrased in prose. We can comment *upon* the metaphor, but the metaphor itself neither needs nor invites explanation and paraphrase. Metaphorical thought is a distinctive mode of achieving insight, not to be construed as an ornamental substitute for plain thought. (p. 237)

Metaphors that become deeply entrenched dominate and structure our thinking on a given topic; they become, in effect, archetypes (p. 241). Thus, the judicious use of metaphor can lead to great breakthroughs and changes—by challenging existing archetypes and encouraging new ways of seeing relationships. This was not the first time it had been suggested that metaphor and archetypal thinking are related,[4] but Black's argument was, at the time, by far the most detailed exploration of the link between metaphor and the practical application of philosophical theory in the sciences.[5]

The archetypal model of metaphor found its most profound realization in 1980 with George Lakoff and Mark Johnson's *Metaphors We Live By*, in which the authors argue that the linguistic appearance of metaphor is merely the reflection of deeper cognitive processes in the human brain. Far from being merely a stylistic trope or ornamental language, metaphor is a conceptual process, fundamental to the ways that humans interact with the world. Their theory, generally known as Conceptual Metaphor Theory (CMT) relies on three points: the ubiquity of metaphor in everyday language, the systematic nature of metaphor, and the grounding of metaphor in bodily experience. Ubiquity is easily established; Lakoff and Johnson (and subsequent generations of their students) have demonstrated hundreds of metaphorical concepts like TIME IS MONEY[6] and ARGUMENT IS WAR that exist throughout our everyday language, in most cases without our conscious awareness. We save time, spend time, waste time; we talk about time as a valuable, physical thing. We attack and defend ideas, find strong and weak points, win and lose arguments, always talking about even compromise-driven discourse

in terms of conflict and struggle. The metaphors are everywhere and largely invisible in our daily language.

Lakoff and Johnson also demonstrated that many of these metaphorical concepts are interrelated with each other in systematic, patterned ways. TIME IS MONEY relates to other metaphors such as TIME IS A RESOURCE and TIME IS A VALUABLE COMMODITY, as well as metaphors about value and worth; moreover, a clear hierarchy can be outlined, with TIME IS MONEY as a specific subset of these more general metaphors. The links are systematic and traceable, and Lakoff and Johnson argued that these systems of metaphorical concepts govern the ways we talk about almost everything, especially abstract or complex ideas—love, life, ideas and emotions, and so on. Most importantly, because these metaphorical concepts structure our language about so many aspects of our lives, they also impose constraints on the ways we understand our existence and interact with other people. For example, our conceptual metaphor ARGUMENT IS WAR makes it difficult for native speakers of English to discuss argument in terms other than agonistic; we can, if we try, conceive of alternatives—Lakoff and Johnson offer ARGUMENT IS DANCE as one possibility, with its attendant focus on skill, grace, cooperative motion—but such a movement, they argue, would alter the concept in question to the point of unrecognizeability. ARGUMENT IS WAR and ARGUMENT IS DANCE are not competing conceptions of the same activity—they are metaphors that describe, for English speakers, fundamentally different kinds of discourse.

Finally (and most controversially), Lakoff and Johnson argue that conceptual metaphor is grounded in bodily experience. They suggest that it is fundamental to our use of language because our physical experience in and relationship with the world requires conceptual metaphor in order to be comprehensible. They present as evidence the fact that even our most basic orientational and spatial language is at least partly metaphorical in nature; we perceive ourselves as bodies separate from the world and interacting with our environments in varying ways, and it is inevitable that our language would reflect this experiential separation. Lakoff and Johnson suggest metaphors like THE VISUAL FIELD IS A CONTAINER and TIME IS A MOVING OBJECT (p. 58) as conceptual systems that reflect our bodily experience. They argue that even our basic orientation words—up, down, front, above, and so on—are metaphorical to the extent that they reflect a subjective, non-absolute perspective about bodies and spatial relationships. Similarly, metaphors with emotional and ethical content, such as UP IS GOOD and SAD IS DOWN reflect the relationship between our bodies and our language. Lakoff and Johnson ultimately wished to use their findings about metaphor to argue for a new "experientialist" philosophy that occupies a middle ground between the extremes of Objectivism and Subjectivism. While they had little influence in philosophical circles, their book has remained a cornerstone of cognitive linguistics for the last two decades.

Since the publication of *Metaphors We Live By*, CMT has been developed largely by Lakoff and his students as they have attempted to create "mappings" of hierarchical and lateral relationships among hundreds of conceptual metaphors (see Goldberg 1996). The basic tenet of CMT—that metaphor is a conceptual building block fundamental to

all thought and language—has not been challenged,[7] but several aspects of Lakoff and Johnson's argument have been called into question or developed in recent years. Most notably, Joseph Grady (1997) suggests a more complex explanation of the conceptual metaphorical systems that Lakoff and his students have compiled; Grady argues that CMT (as outlined by Lakoff and Johnson) does not adequately explain certain issues. Specifically, he points out that conceptual metaphors do not take advantage of all available mappings (i.e., often logical extensions of mappings are readily apparent, but no corresponding conceptual metaphors seem to exist), and that certain conceptual metaphors seem to overlap and cover the same mental schema. In neither of these cases can CMT offer a reasonable explanation. Grady suggests a more complicated categorization of metaphor into primary (or basic) metaphors, which are the sort covered by CMT, and compound metaphors, which involve a more complex interaction between basic metaphors, and which help to explain several oddities in everyday metaphor use.

Other linguists have pursued tangential research based on Lakoff and Johnson's work. In *The Poetics of Mind* (1994), Raymond Gibbs shows how numerous researchers have expanded upon CMT, demonstrating clearly that metaphor is but one of many figurative or non-literal conceptual frameworks that govern human cognition and language use. While this work has added little to Lakoff and Johnson's framework for analyzing hierarchies of conceptual metaphors, Gibbs shows that similar frameworks have been developed for metonymy, irony, and idiom, demonstrating that metaphor, while prominent in mental schema, is not alone as a means for ordering our experience of the world.

And lastly, there is currently a small but influential group of researchers in the field of psycholinguistics who look at metaphor quite differently from the CMT theorists. Gilles Fauconnier is the leader in this area of research, known as "Blending Theory" (BT), which treats metaphor as part of a larger process in the human brain that governs cognition. While CMT tries to account for the appearance of metaphor in everyday language by citing its origin in conceptual processes, BT attempts to explain a wider array of figuration (e.g., metonymy, irony, oxymoron, and counterfactuals) by determining the exact functioning of conceptual processes that allow any kind of figuration (including metaphor) in the brain. CMT focuses on repeated patterns and systems; BT concerns itself with novel instances of figuration, the human capacity to create and comprehend previously unencountered instances of metaphor. Fauconnier accounts for metaphoric comprehension through a particular sort of mental process that he calls "blending"—mental input spaces in the mind contain information about particular domains, and are combined in a process called mapping[8] that transfers information from a *source* domain and combines it with information from a *target* domain to form a new blend space that incorporates material from both domains and thus allows figuration to occur. In this way, suggests Fauconnier, “[a]ll forms of thought are creative in the sense that they produce new links [between domains], new configurations, and correspondingly, new meaning and novel conceptualization” (1997, p. 149). While BT has little bearing on my project in this dissertation, I mention it because BT has, until recently, been seen as competing with CMT, or as creating problems for Lakoff and Johnson’s more general account of conceptual metaphor.

However, As Grady, Oakley, and Coulson have argued (1997), these two systems of linguistic analysis are quite compatible; they address different aspects of the same (or closely related) conceptual processes, and thus provide complementary approaches to similar issues.

To sum up—metaphor studies have had a long, fairly uneventful history with a sudden flurry of activity beginning in the latter half of the 20th century. There has been a rapid and decisive movement away from the older comparison and substitution models of metaphor comprehension to Lakoff and Johnson's Conceptual Metaphor Theory, which tells us that metaphors guide the ways in which we think about the most basic aspects of our experience. By encouraging certain ways of thinking while de-emphasizing others, conceptual metaphors impose constraints and restrictions—and this can have serious consequences. It is well known how metaphors exert a powerful influence in areas like the sciences (see Black 1962, Kuhn 1993, Pylyshyn 1993, and Baake 2003) and education (see Mayer 1993, Petrie and Oshlag 1993, and Sticht 1993) by making difficult material understandable or providing an organizing perspective. But metaphor is equally influential in other cultural settings, and often in far more subtle—and sometimes insidious—ways. Donald Schön (1993) has demonstrated how "generative metaphors" used in social policy situations (for example, when politicians characterize the state of older project housing as "urban blight" or "urban decay") tend to highlight only certain aspects of a problem, make causes of the problem seem obvious, and make solutions to the problem seem natural (p. 144 ff.). Metaphors limit conceptual options, hiding as much as they reveal, and they are not always easily

recognized. CMT offers an avenue for exploring everyday language, to ferret out assumptions in and constraints upon our ways of thinking caused by the metaphors we use about a given issue.

Metaphor Studies and Technical Communication

While the study of conceptual metaphor has developed along roughly the same timeline as the study of technical writing in this century, technical communication scholars have not taken much notice of metaphor studies. Scholars have, however, explored the role of metaphor in the sciences, both as philosophical grounding and as rhetorical tool. Because much of technical communication theory owes its origin to scholarship in the sciences, the existing studies of metaphor in these fields are sufficiently relevant to use as a starting point for this dissertation.

After Black's discussions of scientific models and archetypes, the most famous study of the role of conceptual systems in the sciences is Kuhn's *The Structure of Scientific Revolutions* (1962), which, while not directly about metaphor, makes many observations that fall in line with Lakoff and Johnson's CMT. Kuhn demonstrates how science takes place as a series of community practices rooted in shared beliefs and assumptions; he defines "normal science" as "research firmly based upon one or more past scientific achievements… that some particular scientific community acknowledges for a time as supplying the foundation for its further practice" (p. 10). These communally-accepted paradigms form normative boundaries that impel scientists to select certain avenues of inquiry, guide the formation of research questions, determine the methodologies used to examine questions, and define the areas that will be

considered relevant for research (p. 15). Scientists who work outside the dominant paradigm are typically dismissed; research showing results outside the expected parameters of the paradigm is perceived as anomalous. It is only when anomalies and contradictions accumulate beyond all capacity to be ignored that paradigms change, and a revolution in thinking takes place. Kuhn's paradigms are clearly in some ways extensions of Black's metaphorical models and archetypes. Many paradigms discussed by Kuhn (e.g., discussing the structure of an atom in terms of a small solar system with bodies in orbits) are simply metaphorical constructs for interpreting and understanding abstractions for which no other language exists.

Lawrence Prelli actually begins to explain how metaphor can be a part of the process of paradigm creation and function.[9] In *A Rhetoric of Science: Inventing Scientific Discourse* (1989), Prelli shows that scientific rhetoric functions by means of systems of terms and conceptual constructs that create (rather than describe) reality and induce belief. "Terminological selectivity" gives scientists a powerful avenue for suggesting that one way of stating or examining a problem is better than others, and that a particular paradigm is appropriate for judging the results of that examination (p. 99). By making particular metaphorical choices—for example, talking about the function of a DNA molecule in terms of code, communication, and translation (p. 211)—scientists guide and limit the structure of an accepted paradigm. Though Prelli discusses metaphor as only one of many rhetorical topoi that effect paradigms, he opens the way for later discussions of metaphor in scientific discourse. For example, Richard Johnson-Sheehan (1998) further explores the roles played by metaphors in the production of scientific

knowledge; most interestingly, he examines how scientists consciously take advantage of the rhetorical functions of metaphors (suggesting, guiding, and constraining avenues of thought) within their written work in order to induce belief in their audiences.

Perhaps the most novel addition to discussions of metaphor in the sciences comes from a recent book by Kenneth Baake. In *Metaphor and Knowledge: The Challenges of Writing Science* (2003), Baake explores how scientists at the Santa Fe Institute (a think-tank devoted to expanding scientific knowledge through interdisciplinary collaboration and study) understand the role of metaphor in scientific discourse, and he demonstrates that scientists' conceptions of language and objectivity are far more "postmodern" than is usually assumed by scholars in the humanities. Understanding that language is often unstable, the scientists at the Santa Fe Institute consciously (and cautiously) use metaphor in an effort to bridge conceptual differences among scholars in vastly different fields. Baake finds that metaphor has a vital, central function in their production of new knowledge among disciplines, letting scientists not only understand and engage in each others' work, but also pull theory from unfamiliar disciplines and apply it to make new discoveries in their own fields. Baake departs from other metaphor theorists by suggesting that metaphor accomplishes its work by means of a sort of conceptual "harmonics." Consciously choosing this term for its musical, acoustic, and electrical connotations, he argues that metaphors are successful to the extent that they "resonate" with the discourse in which they appear (p. 9). Overlapping layers of meaning, functioning much like overlapping frequencies in notes or tones, can create strong senses of association—or subtle discord—within the conceptual framework in which they exist.

Baake demonstrates that some of the metaphors chosen by scientists resonate in unproductive ways, or lose resonance; his prime example is the “game theory” metaphor favored by mathematicians, economists, and social scientists for human behavior models, which once carried connotations of human agency and intelligent cooperation, but which have been almost completely emptied of meaning by constant use over time (p. 219).

Ultimately, what Kuhn, Prelli, and Baake show is that studying metaphor can be a productive way of examining the inner workings of a discipline. The metaphors used by a discourse community reveal the things valued and assumed by that community; conscious attention to metaphors can change the ways that a discourse community functions, and change the ways the community’s knowledge grows.

This same kind of examination can be a profitable undertaking for technical communicators. Only a few writers have specifically discussed the function of metaphor in technical communication. In most cases, they simply discuss the benefits of design metaphors that help readers understand or navigate complex information (see Nielsen 2000 for a representative example).

There is only one article in which a technical communicator has seriously wrestled with the connotations of his field’s metaphors about itself. In “Implications of Metaphors in Defining Technical Communication” (1991), Charles Beck writes at a time when technical communicators were struggling to articulate their role in industry. He explores the various metaphors used by technical communicators to describe their work and aid in definition of their field (transmitter, channel, balance, bridge), and finds all of

the most common metaphors lacking—in most cases, because they unintentionally carry inadequate implications about language, writers, or readers and thus, by extension, undermine the importance of the profession. The transmitter metaphor, for example, suggests that the communicator is broadcasting information to a receiver in a clear, one-way, and (presumably successful) automatic process; all agency is removed from the receiver, whose sole function is to be the passive recipient of communication. Similarly, the bridge metaphor suggests connection, but not necessarily interaction; moreover, it suggests that the function of technical writing is merely as a link between the two points where communication originates and is made use of. These metaphors, Beck argues, are partly responsible for the inadequate conceptions of technical communication that plague practitioners in the workplace. Beck looks for a more accurate definitional aid among a series of less common metaphors (lock, transformer, synthesizer, conductor), finding each lacking in some way until he settles on the metaphor of the orchestrator. Citing both the musical and the electrical connotations of the word, Beck suggests that "orchestration" is an accurate metaphor for the coordination, reorganization, and translation that are common activities in his profession.

Beck's article is interesting (to me, at least) for several reasons. First, he makes his observations without any working knowledge of modern research into metaphor. Beck cites as his sources on metaphor Ralph Waldo Emerson, Robert Frost, Monroe Beardsley, and Ann Berthoff, and is clearly working in a more literary and rhetorical tradition. He advocates the conscious use of metaphor by technical communicators to portray a picture of themselves to others—i.e., as a rhetorical trope. His readings of the

common metaphors are exercises in wordplay rather than linguistic analysis; he explores the limits of various meanings, often wandering into the realm of the improbable for the sake of teasing out permutations of various metaphors, often without much consideration for how those permutations are connected among themselves or with other metaphors. When discussing the bridge metaphor, for example, Beck begins by outlining the communication model underlying it, and trails into a discussion of bridge aesthetics and the beauty and functionality of technical communication. Rather than tracing the boundaries of a particular metaphor, he combines associations with the word “bridge” in a somewhat haphazard fashion. These kinds of observations, disconnected from any systematic understanding of the function of metaphor in language, run throughout the article; while they are not productive in a linguistic sense, they still demonstrate real consequences for particular avenues of thought.

This leads to the second reason I find Beck’s article interesting. He takes important steps toward demonstrating that metaphoric analysis can serve a larger purpose than the sort of cataloging favored by Lakoff and Johnson. Metaphoric analysis offers a means to explore this relationship between thought and language, and Beck demonstrates that the conclusions have practical, not just theoretical, implications: one can consciously use new metaphors to facilitate new ways of thinking. Though he does not examine metaphor at the level of the conceptual system, he still shows that this kind of analysis can be a profitable undertaking for technical communicators.

Scope and Goals of This Project

As I showed at the beginning of this chapter, there are clear conceptual rifts between the two central groups in the field of technical communication: those in the university who study and teach it, and those in industry who do it for a living. Based on the work of numerous scholars like Baake and Beck, I believe that examination of conceptual metaphor offers a way to trace and talk about the differences between academics and practitioners in meaningful ways. By looking at how these two groups describe themselves and their work, we can begin to uncover the ubiquitous and patterned systems of thought that underlie their attitudes and interactions. By laying bare these conceptual systems, we can begin to understand the differences and issues that must be addressed in order for technical communication to be a unified field of practice. In short, it is my goal to use conceptual metaphor theory to provide a new direction from which to address and critique problems in this discipline.

I started with the following three groups of questions as the basis for my research:

- What conceptual metaphors (both explicit and implicit) dominate the discourse of professional technical communicators? What metaphors dominate the discourse of academic theorists/teachers?
- What conceptual metaphors do professional technical communicators share with academics? What conceptual metaphors are unique to each group? To what extent does their metaphorical practice differ?
- To what extent do the two groups use conceptual metaphors that demonstrate conflicting or incompatible systems of philosophy, semiotics, or social rhetoric?

In order to answer these questions, I chose to look at samples of discourse from both groups. Almost any kind of text might be profitably used for this kind of analysis; however, because my goal is to examine how academics and practitioners differ in their understanding of their own purposes, social roles, and relationships with readers and texts, I chose to use as sample texts articles from the four most widely-read publications produced for technical communicators. These articles, written by academics and practitioners for their peers, offer a relatively unobstructed view of technical communicators talking about themselves and their work, articulating their values and debating their goals openly among themselves. In this ongoing dialogue among members of the discourse community we can most clearly see the conceptual systems for which we are looking.

In Chapter II, I explore the conceptual metaphors predominant in practitioner discourse by examining articles from *Technical Communication* and *Intercom*, two publications aimed at the largest professional organization of practicing technical communicators. I begin with a detailed look at a single article which attempts to define the purpose of the technical writer in the global marketplace, and show how the writer uses two particular series of conceptual metaphors that articulate systematic relationships among readers, writers, and texts: communication becomes a mechanical activity with machine-like features, but also an economic transaction steeped in capitalist politics. Texts are both machines and commodities, writers both engineers and producers; readers passively use and consume. The two systems of metaphor in this article treat ideas as physical objects that can be both built and traded, and clearly form

the foundation for the author's goals and opinions about her role in the workplace. I then trace these Positivist metaphors through other articles, showing that they are not an isolated oddity, but rather representative of discourse among technical communication practitioners. I also show that even academic scholars who write for a practitioner audience adopt the same metaphors, despite the tension that exists between the physical object metaphor and the typical goals and intentions of academic writers.

In Chapter III, I turn my attention to the discourse of technical communication scholars and academics. Taking as my source material articles from *Technical Communication Quarterly* and *The Journal of Business and Technical Communication* (two journals which focus on more abstract theoretical issues and scholarship), I show that academics have a very different set of conceptual metaphors. Analyses of a series of articles show that there are three Humanist metaphors that appear regularly in the discourse: metaphors that imbue communication with an abstract sort of physical presence, metaphors that treat communication as an act of agency or the exercise of power, and metaphors that treat communication as a complex, organic system. Though these Humanist metaphors are more numerous and diverse (i.e., less clearly interrelated) than practitioner metaphors, they share a general focus on the bodies and voices of individuals who read and write; they are metaphors about human interaction and relationships, rather than machines and commodities. I show that they appear in a large percentage of academic articles, and that they embody a clear set of social goals that run counter to the assumptions and goals present in practitioner discourse.

In the fourth chapter, I explore the implications of these competing systems of conceptual metaphor in the technical communication classroom. I examine technical writing textbooks to determine the extent to which they participate in either the physical object or humanist metaphors, and find that the textbooks demonstrate the same tensions and inconsistencies endemic to practitioner and academic discourse in the professional journals. Textbook chapters on theory reflect the humanist metaphors that favor the social and political agendas of academics and scholars, while application chapters almost inevitably slip into the Positivist metaphors that treat student writers as engineers and texts as commercial goods, adopting language that undermines the assumptions and values ostensibly forming the textbooks' foundations. I trace this trend through Mike Markel's *Technical Communication*, one of the most widely-used introductory textbooks in technical writing courses, and show how other major textbooks (which have recently been openly modeled on Markel's successful text) demonstrate the same conceptual tensions. Instructors are thus led into unwittingly perpetuating practices built on untenable theoretical foundations and indoctrinating new generations of students into precisely the sorts of thinking and behavior that the academic authors would like—at least theoretically—to avoid.

Ultimately, this dissertation takes as its starting point a very specific and fairly limited theoretical claim: conceptual metaphors govern how we have our experience of the world, and examining our metaphors is a central component of understanding that experience. This is really no different from arguments that rhetoricians have been making for decades. Kenneth Burke presaged the idea of conceptual metaphors in

several of his works. He classified metaphor as one of the four "master tropes" (along with metonymy, synecdoche, and irony) which play a central rhetorical role in "the discovery and description of the 'the truth'" (1941, p. 503), and suggested that, in terms of practical application, metaphor can be thought of as a trope of "perspective" that guides how we see (p. 503). In later essays, Burke talked more generally about "terministic screens" (1965), language that inevitably both selects and deflects characteristics of the world around us for consideration; he argued that "much that we take as observations about 'reality' may be but the spinning out of possibilities implicit in our particular choice of terms" (p. 46). Lakoff and Johnson's Conceptual Metaphor Theory merely provides a linguistic framework for formalizing how we might analyze and study the terms we choose.

For technical communicators, this kind of linguistic self-analysis is doubly important. Working in a field that concerns itself with effective language at a fairly basic level, we can greatly benefit from studying the unintended and often unconsidered baggage that insinuates itself into the writing that we do. More importantly, examining our conceptual metaphors is a valuable first step in understanding the perpetual disagreements that keep academics and practitioners so firmly divided. As Chapter IV attempts to demonstrate, the divisions between the workplace and the academy are not so much a rift between theory and practice *per se*, but rather the result of competing conceptual systems with entirely different goals and values. Whether the divisions can ever be resolved is difficult to say—but any attempt to resolve them is bound to fail

unless we understand the boundaries of those divisions and the reasons they exist. If nothing else, metaphor analysis offers a new perspective on the problem.

CHAPTER II

BRIDGES, CONDUITS, AND MACHINES: CONCEPTUAL METAPHORS IN PRACTITIONER DISCOURSE

In the previous chapter, I attempted to build a case for the study of conceptual metaphor as a means to identify and examine problems in human communication: metaphor is ubiquitous in human language, it is systematic in its permutations, and tracing lines of conceptual metaphor reveals deeply entrenched habits of thought that can be subtle, convoluted, and monolithic. I also argued that this kind of linguistic analysis is particularly suited to addressing several ongoing problems within the field of technical communication, because these problems relate directly to issues of language and understanding.

In this chapter, I begin my analysis by considering the conceptual metaphors used by practitioners of technical communication. Because I am primarily interested in the ways that technical communicators think about themselves and their work, I use as my sample data two publications produced by the Society for Technical Communication (STC): *Intercom* (a trade magazine), and *Technical Communication* (a journal that publishes research articles on matters of everyday practice). Both publications are aimed at a variety of audiences—practitioners, students, and scholars—but each focuses emphatically on issues related to *doing* technical communication. This kind of journal, in which practitioners are talking among themselves about the minutiae of their discipline, seems an excellent place to catch conceptual metaphors at work, and to look for patterns

among them. I begin by examining the conceptual metaphors apparent in several articles, and then attempt to build a model or framework of these metaphors. I conclude the chapter by testing this framework on other practitioner articles and comparing them with articles written for a non-practitioner audience.

Knowledge as Object, Communication as Commodity

In January, 2002, *Intercom* published an article by Paula Berger, an STC fellow and practicing technical writer. Her article, entitled "Zeroing in on the Bottom Line," is an analysis of some of the rapid changes in the field of technical communication following the economic downturn in the United States after the September 11th, 2001 terrorist attacks. In a matter of a few months, technical writers ceased to be highly in demand, lost what had appeared to be secure career prospects, and many, particularly the numerous consultants and contractors in the field, were among the first rounds of corporate lay-offs. Berger writes to an audience watching their jobs become extraneous in a corporate environment increasingly centered on saving money. Her article is clearly intended to be a pep-talk, which she delivers in the form of advice for being more efficient and useful in the slow economy; she is, in essence, telling her fellow STC members that they are all still necessary, still better equipped to deal with the vital and intricate tasks of technical communication than anyone else, and, therefore, still central to the success of any business undertaking. In order to remind managers and other superiors of this important point, argues Berger, technical communicators need to adapt to the new business environment and make themselves indispensable—and she attempts to demonstrate key areas in which this is possible.

In particular, she cites five areas of the writers' work that stand to make them indispensable in a tighter economy: standardization, content, information retrieval, single sourcing, and knowledge management (pp. 8-9). Her brief descriptions of each of these areas offer a wealth of material for discussing the conceptual metaphors used by practitioners of technical communication.

Standardization. Berger first points out the inefficiency of technical communication: many of the tasks performed by writers end up being beneficial in the moment, but are of no help to later projects because there are no standard processes for repeating actions or dealing with similar issues.

> We find solutions to thorny technical problems, we discover creative conversion techniques, we use exciting combinations of tools and techniques to solve our information development problems. It's interesting, it's rewarding, and it's highly inefficient… We're still crafting one-time solutions to our problems instead of developing common, efficient processes. (p. 8)

A design element that makes a web page more useful applies only to that particular web page; an elegant solution to an indexing problem in a lengthy manual will not necessarily be useful in the next manual. Technical communicators work in highly specialized, individual moments that require creativity and novelty to solve unique problems. Berger, however, clearly fantasizes about a process that will make unique problems easier to solve, faster to identify and address.

Notice the thread of metaphors: for Berger, writing is a form of problem solving. Or, more precisely, writing tasks are problems, and the activity of the writer is to provide solutions. The writer carries out this task by "converting" existing materials, using "tools and techniques" in the practice of this "craft," with the ideal goal of "efficiency." Berger's writer uses her hands. She is a crafter, wielding words like hammer and saw; but she is a crafter of the industrial age, making her wares on assembly lines for mass markets. Throughout this short passage, the mathematical, mechanical language of the engineer dominates; in fact, toward the end of this passage, Berger even characterizes her suggestions as "reengineer[ing] our entire process" (p. 8). Though she cannot say what a more efficient, standardized set of processes might look like—indeed, she doesn't even offer suggestions—Berger still calls for someone to sit down and draw up blueprints for the better text. With the right formulae and sufficient precision, writers' lives would be easier, better, more productive.

Content. Berger also argues that technical communicators need to position themselves as the premiere authorities on "content," because "[f]or the first time, companies believe that providing information (aka content) improves their competitive position and gives them an edge, particularly in the e-commerce arena" (p. 8). And because most companies have massive amounts of information—for previous products, current products in multiple versions, and projects in development, not to mention customer data etc.—someone needs to know what it all is, where it all is. Berger suggests that technical communicators already do the sorts of tasks necessary to make them good content managers:

> We know how to analyze what content is useful, why, and for whom. We know how to organize content in logical ways, how to define it so it can be used for multiple purposes. These are key tasks in the content world – the tasks of the information designer or information architect. (p. 8)

If the previous section highlights particular metaphors for the skills of the writer, this section of Berger's article highlights metaphors for what the writer writes. What makes "content" different from "texts" or "documentation"? The emphasis is not on particular tasks or goals (the writer's concern is not, for example, reporting, instructing, proposing), but rather on something almost physically tangible—content is a sort of raw material, something from which other tangible things are made. Content is not an action or a means to communicate; it is an end unto itself. She talks about it as though it has a physical form—Berger tells us there are vast quantities of content lying around in "huge libraries" (p. 8). Clearly, content has monetary value (in the Information Age, it is the *most* valuable thing), but, most importantly, raw content is not quite fit for the public; it must be analyzed, organized, and defined according to its purpose, shaped for public consumption at the hands of the "information designer/architect." Again, the writer is a builder, constructing and engineering with careful precision—and the text, no longer merely an act of communication, become rather a crafted *product*, a structure with physical form and value.

Information Retrieval. Because there's so much content available, both for the company and the consumer, Berger cites information retrieval as an area particularly suited to the technical communicator:

> We know how to help people find just the information they need. Navigation, keyword searching, indexing—these are all information retrieval skills within our domain. Additional information retrieval solutions are becoming part of the information management vocabulary, and they too fit right into our skill sets: thesaurus management, taxonomy, classification schemes, controlled language, natural language querying, and so on. (p. 9)

As before, problems and solutions play an important role in this discussion. The physical nature of information is further reinforced with a distinct spatial metaphor—content resides in a physical space which must be navigated, from which it can be retrieved, and in which it can be lost. The scientific language of taxonomy and classification reinforces the complexity of this physical space; there is a great deal of content simply lying about in chaotic disarray which must be sifted, sorted, grouped, and labeled according to its kind in order to be useful. The writer is again an engineer, bringing precision and organization to bear on disorder. Note also that the technical writer's particular skills include the ability to control wild language, to create systems that can function despite the inefficiencies of natural language.

Single Sourcing. Berger admits that this "information solution" is still not widely implemented, and probably will not be for some time, but "it's definitely on the horizon. It's too important not to be" (p. 9). Single sourcing can be most simply defined as using one source-document (or database of information) to provide the material for numerous end documents. For example, a single text could serve as the basis for a user's manual, a

help system included within a piece of software, and a set of technical specifications on the company's web page. Moreover, with the right embedded markup coding in the original document, the manual, help file, and web page would almost write themselves, each one drawing from the source only the material appropriate to its kind. Single sourcing has been a revolutionary (and eagerly embraced) idea among technical communicators in the last few years, but very few companies have even attempted to implement it; according to Berger, the start-up cost to implement the necessary organization and conversion of existing content is high, and there are no software tools truly adequate to the task. However, she assures her readers that this technology is coming, and that technical communicators should be prepared:

> So let's use 2002 to get ready. If we can somehow share the expertise that's been gained so far and develop some guidelines and standards, then perhaps we can cut the up-front investment for everyone, in terms of both time and cost. That would make single sourcing a much more palatable option for many organizations. If, simultaneously, the tools mature, then we may see a stampede to implementation. (p. 9)

What I find most interesting about Berger's entire discussion of single sourcing is what she *doesn't* say. There is no attempt to explain how single sourcing works despite the fact that no one except very large corporations have even tried it, because she assumes her readers are all familiar with the idea; nor does she attempt to persuade her audience that it's a necessary evolution in technical communication, because she assumes that all will agree with her that it is a desirable end. She does not give concrete suggestions for

how writers might go about preparing for this future change, either; the passage above contains only hedges and vague generalities – if, may, perhaps, somehow. Technical communicators don't know how to do it, there aren't tools that can help them do it, and she can't point to any evidence that it makes their jobs any easier. But, nevertheless, the single sourced text attains an almost mythic status in her discussion—it is better, faster, more efficient. It is the natural result of the mechanistic metaphors we have seen so far: the ideal writer is an engineer of content, and thus the logical end of his work is the clockwork text that creates other texts, perpetuating content with minimal effort from the writer.

Knowledge Management. The last major issue Berger suggests that technical communicators should co-opt is knowledge management:

> At its most unwieldy, creating a knowledge base means storing as much as possible of a company's vast intellectual property in a database, identifying (tagging) each piece in some useful way, then training people in how to find what they need. Only the largest companies have succeeded at full-scale implementations. Many companies, though, have successfully built smaller knowledge bases for specific uses, particularly customer support. (p. 9)

Once again, the previous metaphors (construction, physicality) reach their natural ends. Information (of whatever taxonomy it might be) must be sorted, tagged, and stored to be valuable; information is not an active part of a social context, but rather physical, discrete stuff that can be filed, retrieved, and should, ideally, be always accessible to the

right people. This section contains the most complete realization of a secondary set of commodity metaphors that appear throughout Berger's article. Knowledge is ultimately property to be managed, and good management means better value.

Though there are numerous metaphors running through Berger's article, they generally work together to form a coherent system of concepts about technical communicators. Writers are *engineers* (as opposed to artists, sculptors, etc.; they design and build) and writing is *problem solving*. Texts are *machines* or *tools* (that are crafted, have specific uses/kinds/purposes, and produce more texts), while information has *physical form* (requiring building, sorting, storage, and so on) and is a *commodity* (private property with commercial value). Encapsulated in these metaphors—or rather, the thing that makes them coherent—is a model of communication, roughly realized in this article but still clearly underlying it, in which communication is treated as a physical, objective process of transfer between two points. In this model, writers are active while readers are passive; it is not a model that favors cooperation or interaction. It is mechanical, linear, like the transmission of radio waves.

Scholars of rhetoric and composition have discussed and problematized this linear model of communication at great length; scholars of metaphor, however, have traced its origins to fairly basic metaphors that exist within our conceptual systems about language. Michael Reddy has linked the linear model of communication to what he calls the "conduit metaphor." Reddy demonstrates that "English has a preferred framework for conceptualizing communication, and can bias thought process toward this framework" (p. 165) which treats knowledge as a physical entity that is directly

transferred from one source to another. Giving nearly 200 examples of everyday language that fits within this metaphorical system, Reddy condenses the conduit metaphor down to four groupings:

> The core expressions in these categories [of metaphorical statements] imply, respectively, that: (1) language functions like a conduit, transferring thoughts bodily from one person to another; (2) in writing and speaking, people insert their thoughts or feelings in the words; (3) words accomplish the transfer by containing the thoughts or feelings and conveying them to others; and (4) in listening or reading, people extract the thoughts and feelings once again from the words. (p. 170)

The conduit metaphor is nearly ubiquitous in English, and Reddy argues that it is problematic because it encourages us to understand language as objective and it leads to "natural" assumptions about the ways that language works and the ways that communication problems might be solved. We are capable of understanding that communication is neither linear nor simple—Reddy, ultimately interested in the practical problems presented by the conduit metaphor, even postulates another set of conceptual metaphors that more accurately describe communication, articulating what is now widely recognized as a social constructionist model of communication—but the metaphors that make up our conceptual system about language bias us toward perceiving it in terms of simple linearity.

For our purposes, whether or not the conduit metaphor presents a skewed view of communication is not really the issue: it is sufficient to recognize that the conduit

metaphor is closely related to the coherent set of metaphors in Berger's article. The engineering and commodity metaphors used by Berger can be seen as connected and interrelated to the extent that both ascribe a certain abstract, inanimate physicality to the agents and processes of human communication. They are positivist in the sense that Carolyn Miller defines positivism—as a preoccupation with objective, knowable reality that stands in opposition to the more abstract social values of humanism. As a sort of working title, we might group the engineering and commodity metaphors collectively under a larger, generalized "Positivist" metaphor that encompasses the ideas inherent in both subsets.

Berger's emphasis on the craft of building and the business of selling is perhaps not out of place in *Intercom*, which is, after all, a trade journal, concerned with the practicalia of everyday technical communication in the real world. The articles in this publication are brief, offering the authors little time or space for expansive research or detailed theoretical grounding. And because the articles are written by practicing technical writers for practicing technical writers, we might expect a certain preoccupation with monetary and production concerns, particularly when written (as Berger's article is) in a time of economic uncertainty. However, *Intercom*'s sister publication *Technical Communication* positions itself as a more research-oriented journal. It is the STC's venue for the practical application of theory and research, and its contributors are most often scholars and professors in university programs. Scholarship in *Technical Communication* (hereafter referred to as *TC*) is more overtly grounded in current research in composition and rhetoric, communication theory, cognitive

psychology, etc., and is usually aimed at applying this research to issues of interest to practitioners. The articles also tend to be more explicit about the theoretical underpinnings of their discussions about language issues; the authors published in *TC* are quick to align themselves with social constructionist models of language that are far more context-based and "audience-oriented." We could safely expect, then, that the conceptual framework for technical communication found in *TC* should be radically different than that espoused in *Intercom*. The reality, however, is somewhat more complex.

An example is J. D. Applen's "Technical Communication, Knowledge Management, and XML," published in the August 2002 issue of *TC*. Applen, a professor at the University of Central Florida, makes an argument strikingly similar to Berger's: technical communicators have skills that enable them to position themselves as knowledge managers within organizations, and the new XML (eXtensible Markup Language) web standard provides both a tool and an opportunity to make this change happen. He begins by setting a theoretical background for his argument, drawing on the work of Johndan Johnson-Eilola and Stuart Selber, who differentiate between "contractive" and "expansive" communication. Applen explains the difference:

> A contractive technology assumes that in communicating, the sender packages information into 'discrete, unambiguous chunks'; the reader is essentially a passive receiver of information. In the expansive mode of communication, information is transferred in a process in which readers construct and deconstruct pieces of information, putting it into a context

> that is in part a function of the social and political environment in which they work. (p. 301)

Johnson-Eilola and Selber use hypertext as an example of a communication technology that can be either contractive or expansive; i.e., unlike traditional media (such as books), hypertext is capable of allowing the reader to be a more significant part of the authoring process by making context-based choices that determine the nature of the communication that takes place. Writers who create these expansive texts are what Johnson-Eilola and Selber call "symbolic analysts"—a title that reflects the writers' more intimate connection with the semiotics of language. Symbolic analysts do not just write, but rather "work to make meaning out of information with an awareness of the larger system and its ability to serve them and the people who use the products" (Applen, p. 302). Given this combination of writers who understand the "systems" of language (and can thus challenge or alter them) with expansive communication technologies that give readers an active voice in the formation of meaning, Johnson-Eilola and Selber suggest that radical change in the social construction of knowledge is possible. And technical communicators seem to have the right skills for this task.

Applen's goal in reiterating their argument is to extend it, and suggest that XML is the ideal realization of an expansive communication technology. XML is an extremely versatile standard designed to replace HTML (HyperText Markup Language) as the web page authoring language for the Internet. Whereas HTML provides "tags" for altering the appearance of text and some basic page-formatting ability for displaying text in web browsing programs, XML allows a wide variety of information to be coded in such a

way that the same page can be accessed by many different devices, from computer web browsers to hand-held PDAs to Internet-ready cellular phones. XML also allows a web page to access a database (or multiple databases) and present itself dynamically, based on the method by which a user is viewing the page or feedback given by a user (e.g., search queries). Rather than writing a document that displays static information, the XML author creates a web page that changes itself based on changing circumstances. It is, far more than most kinds of writing, fluid and context-driven.

Looking at this article, it should be apparent that Applen is approaching his argument from a carefully considered theoretical standpoint. The contractive model of communication (which he rejects) is a clear example of Reddy's conduit metaphor: information packets transferred directly from the mind of the sender to the mind of the receiver in small, manageable chunks of language. The expansive model, on the other hand, focuses on contextual factors in communication, and positions the audience as co-author: meaning isn't possible until both parties are involved, and is created *during* the exchange, rather than prior to it. This model for the social construction of meaning is nothing new in rhetorical or composition theory—and is familiar to many practicing technical communicators, who do not necessarily have a background in these fields—but here social construction theory appears in the service of a larger goal. Applen suggests that technical communicators can "help professionals throughout organizations interact with each other and… use knowledge from others inside and outside their organization" (p. 302). The goal is not merely to write tidy web pages for readers sitting in front of their computers at home, but rather to encourage communication among coworkers and

across organizations. Given a tool like XML, technical communicators can, argues Applen, alter the social environment in which they work; they can facilitate the interaction of entities, whether they be individuals or corporations. He intimates that we could be living in a revolutionary moment in modern communication. While Berger writes a pep talk encouraging technical communicators to jockey for positions as knowledge managers in order to make themselves indispensable and keep their jobs, Applen clearly has a loftier goal in mind: he's encouraging technical communicators to position themselves as knowledge managers in order change the social and political systems of the corporation. He demonstrates a coherent theoretical view of language and authorship, and elaborates a goal consistent with that view.

However, a closer look at the conceptual metaphors in Applen's text reveals conflicts. The first example comes from Applen's explanation of expansive communication technologies (cited above), in which he says that "information is transferred in a process in which readers construct and deconstruct pieces of information" (p. 301). While he distances himself from the linear, static contractive model that treats information as discrete transferable chunks, he immediately reaffirms that physical, object-oriented metaphor with talk of construction, information in pieces, and the transfer of that information—engineering language *par excellence*, and metaphors that seem at odds with his goal of changing ideas about the nature of knowledge and communication.

Later in the introduction, other oddities occur. Applen quite explicitly rejects metaphors he associates with the contractive model of communication when he says that

"[t]o become more proficient at knowledge management, technical communicators have to look beyond their roles as architects of documents and developers of technological applications that produce and add value to texts" (p. 302). This seems an echo of Berger: writers as architects and engineers, building the valuable products of commerce. Applen says that such labels are insufficient as articulations of the technical communicator's goals, which involve the sharing of knowledge within and among organizations. But in the very same paragraph he states that "knowledge can be shared in a manner that enhances or leverages not just the physical and financial resources of an organization, but its knowledge capital as well" (p. 302). He, too, relegates knowledge to the role of commodity, a thing to be bought and sold and tallied in financial statements along with other sources of income.

Throughout the article, Applen slips into these same Positivist metaphors over and over again. After a lengthy discussion of socially constructed paradigms in science, he returns to the subject of knowledge management.

> Many organizations now realize that the knowledge of their employees is their greatest asset, but because this intellectual capital is cataloged in the minds of people, it is more difficult to direct and leverage… To better take advantage of this intellectual capital, organizations are instituting knowledge management systems that make it, like traditional forms of capital, more readily available to all members of the organization. (p. 305)

His concern for altering the corporate environment has devolved into issues of costs and benefits. Even the expansive model of communication that he embraced earlier in the article has fallen into the service of the commodity and engineering metaphors: databases must be built to catalog and store the vast untapped treasures of employee knowledge. Like Berger's content, Applen's knowledge capital must be sorted, like objects that must be physically accessible in a warehouse. He has switched from repositioning the technical communicator in a role to counter and question language practices to using the technical communicator to improve the corporate bottom line—a reinforcement of the existing paradigm if ever there was one.

In a following section, Applen turns his attention to the relationship between XML and knowledge. As part of his argument that this coding language is the ideal tool for technical communicators, he suggests that its strength lies in providing "not just data, but data with context" (p. 307)—a statement that again recalls his discussion of the fluidity of meaning and the interaction of writers and readers as co-authors of meaning. But he consistently contradicts this expansive view of communication throughout the same passage.

> One of the best ways to understand the nature of the knowledge that technical communicators are trying to manage is by finding out how it is articulated across different branches of an organization, closely examining it, and then breaking it down into its essential components. These practices are what we are compelled to do when producing XML code, and technical communicators can expand their territory into the

> realm of knowledge management by learning how to model knowledge using XML code. (p. 307)

Knowledge appears here as independent, factual, concrete. Like machine parts, it can be disassembled, reassembled, modeled to improve accuracy and performance. Information is an object. Communication is not fluid, contextual, or the joint effort of reader and writer; it is the writer making decisions about how much access the reader gets to objective knowledge. Much of the rest of the article consists of Applen's explanation of the best ways to perform the disassembling and modeling of knowledge. He explains the inner functioning of XML code, and suggests that technical communicators draw on library science—the ultimate knowledge management field—to help "decide how different forms of knowledge can be tagged" (p. 309) and better made available.

Perhaps the most interesting aspect of Applen's article is his discussion of the metaphors that various corporations use for their knowledge base projects. He cites an article by Dutta and De Meyer that outlines the "Proposal Toolbox" at Arthur Andersen (prior to that consulting company's legal and financial woes in 2002). The Toolbox is "an online repository of proposals its members have submitted to their business clients… This tool enables their consultants to reutilize parts of these proposals and also allows them to collaborate with the primary writers of each proposal as needed" (p. 306). Technical communicators at Arthur Andersen build documents out of the pieces of other documents, recycling materials, creating designs based on the successful work of other writers. Applen also points to the Microsoft corporation's "knowledge map" system for keeping track of what employees know how to do; each employees' skills and training

are recorded into a central database so that management can find the most efficient way to distribute certain projects to individuals or groups. In the cases of both Arthur Andersen and Microsoft, Applen is discussing explicit examples of conceptual metaphor for the knowledge management process, and he clearly recognizes that these are different metaphorical articulations of the kind of knowledge management approach he is advocating—but he seems unaware that by falling in line with these metaphors, he is undercutting his earlier statements about using XML to bring radical change to the ways corporations interact with each other and with the public. By embracing language that reduces ideas to objects and commodities, Applen participates in a conceptual system completely counter to his stated goals and objectives for the technical communicator.

Tracing the Web of Practitioner Metaphors

It should be clear by now that there is pattern or method to the metaphors favored by Berger and Applen. The conceptual system in question is subtle and somewhat tangled, but a means of tracing out its convoluted intersections[1] can be found within existing methods from ongoing investigations by George Lakoff and hosts of his students, and by other linguists such as John Barnden working on similar projects.[2]

Though Lakoff and Barnden have compiled large catalogs of metaphorical intersections, the metaphor systems with which we are concerned in this chapter do not appear to be explored by either scholar. Both, however, suggest some basic groupings that provide starting points. Barnden describes several basic metaphors that he links together: “Ideas as Physical Objects” (with its two special cases “Ideas as Possessions” and “Ideas as Sharable Commodities”), “Mind as Physical Space,” and “Ideas as

External Entities" (see "Database").[3] Similarly, Lakoff identifies IDEAS ARE COMPLEX OBJECTS as one of the starting points for major groupings of metaphors; though he only provides examples of this metaphor in action (rather than an analysis of its permutations), he does demonstrate that it entails concepts such as building and construction and locates mental processes in physical space (see "Master Metaphor List"). Because both Lakoff and Barnden are interested in the grander project of mapping the connections between human conceptual systems and everyday language, they merely point out these hierarchies before turning their attention elsewhere.

Roughly approximating the Lakoffian conventions, we can trace some of the permutations of these major metaphors, and develop a more fleshed-out vision of what technical communication practitioners' conceptual metaphor system might look like.

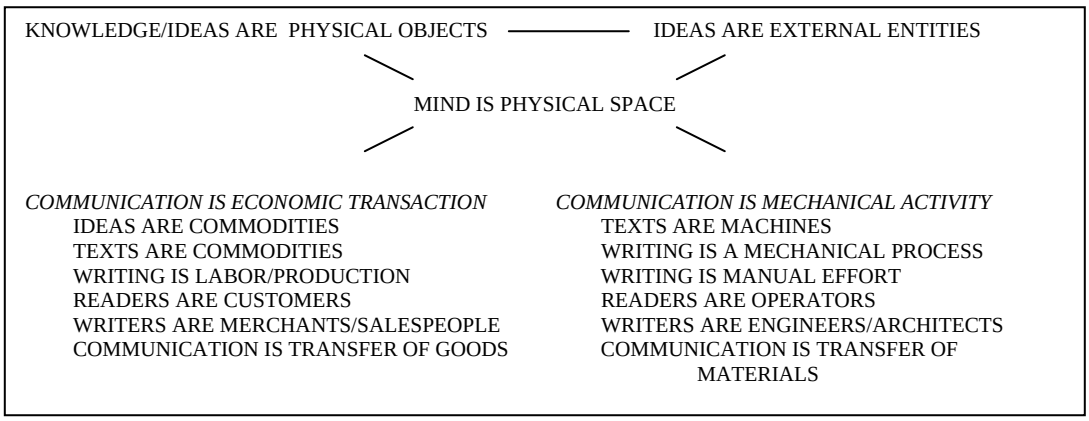

Figure 1. Positivist Metaphors in Practitioner Discourse.

Figure 1 is a fairly simple grouping of what could be a much more complex hierarchy. It is not an attempt to trace these metaphors throughout the English language—a project

that would be a dissertation in itself—but rather to show relationships within the discourse of technical communicators.

The root of the Positivist metaphor system seems to lie among a confluence of the basic metaphors outlined by Lakoff and Barnden: IDEAS ARE PHYSICAL OBJECTS which can by physically manipulated, IDEAS ARE EXTERNAL ENTITIES that exist independently of thinkers, and MIND IS PHYSICAL SPACE in which ideas exist and can be manipulated.[4] For technical communicators, the two major lines of metaphor that arise out of this grouping are COMMUNICATION IS MECHANICAL ACTIVITY and COMMUNICATION IS ECONOMIC TRANSACTION, and we have already looked at some of the permutations these metaphors take in practitioner discourse about different kinds of relationships among writers, readers, and texts. In some instances examined above, the mechanical and commodity metaphors bleed into one another: texts are machines that make money, writers are crafters who labor for wages, readers buy for the purpose of using or making. We could also delve downward to more specific variations of the metaphors—WRITING IS A MECHANICAL PROCESS becomes WRITING IS CARVING, WRITING IS LAYING BRICKS, WRITING IS FITTING PARTS TOGETHER—but an exhaustive listing would be impossible, and clear lists and tidy distinctions among the metaphors are misleading and artificial, suggesting orderly relationships rather than the subtle overlappings we have seen in Berger and Applen's articles. In any case, the basic relationships outlined above are sufficient for our purposes. The Positivist metaphor system is comprised of a series of clearly related conceptual systems that clearly influence how Berger and Applen are able to talk about

the social goals and roles of the technical communicator; these conceptual systems shape the ways that the writers articulate problems and advance solutions, and subvert the theoretical goals advanced by Applen, at least.

Testing the Conceptual System: Six Years of *Intercom* and *TC*

In order to demonstrate the extent of the conceptual system exhibited in Berger and Applen's and articles, I examined the last six years of *Intercom* and *TC* (issues published between 1996 and 2002). For the purposes of this comparison, I ignored all items that were not feature articles (i.e., regular columns, editorials, reader correspondence, etc.) so that the sample data across different journals would be as similar as possible. I also confined myself, during the first look, to indexes of titles and article abstracts, in an attempt to find articles that "clearly" were grounded in the Positivist metaphor system. I chose this approach because it would be easy to find *instances* of the metaphor in virtually all of the articles; therefore, I focused more broadly on the articles' themes as articulated by the authors and editors. I attempted to classify the articles within the system outlined above in Figure 1. My goal was not only to find the extent of the Positivist metaphors among practitioners, but, at the same time, to look for metaphors that did not fit within this conceptual system.

Between 1996 and 2002, approximately 520 feature articles were published in *Intercom*. Many of these were only one page in length; few were longer than three. They focused on a few major categories or issues of interest to practitioners—writing and editing, tools and technology, professional development, personnel management, visual design, and education (for both teachers and students). Of these 520 articles, at least 406

(roughly 78%) overtly or implicitly fit the Positivist conceptual system outlined in this chapter. For example, in “Riding the Winds of Change” (1997) Aviva Garret discusses “information mapping methodology” and the creation of “information modules” that can be plugged into documents. This article overtly participates in the Positivist metaphor system; texts are discrete objects representing pieces of objective knowledge, and an ideal way for storing and transferring such information is in interchangeable, replaceable units that can be fitted in multiple documents as needed.

Other examples abound. M.D. Morris’s “The Power of Quiddity” (2001) outline “a method of editing that reveals the essence of a communication without distorting it.” This suggests the view that knowledge is objective, communication is a direct transmission of that knowledge, and miscommunication is simply a matter of noise on the line. In “The Style Guide is Dead; Long Live the Dynamic Style Guide” (2000), Geoffrey Hart advocates “using a dynamic style guide, a system of templates, macros, and reference materials that actually guides writers through their work.” Such a system serves a writing team by automating the writing process and eliminating the need for writers to make certain decisions about their work; even the system itself is modular, a well-oiled machine that can be updated and altered with new units as needed. These articles and hundreds more like them evince the same assumptions about technical communication, language, and human interaction.

Other articles in *Intercom* participate in the conceptual system more subtly. Tim Altom’s “How to Get Along With Impossible Co-Workers” (1996) isn’t really about

writing or technical communication at all, but rather about personnel and management issues. But his approach to these issues sounds familiar:

> [t]his article explains why people have difficulty getting along in the workplace. By classifying what social type of person you and your coworkers are, you can then measure the degree and steps you need to take in order to exist in the same work place.

Altom reduces the complexities of human interaction to a handful of character types and a series of formulae for mixing and matching these types. This mathematical or machine model for communication places the article very much in the same category as those discussed so far. Numerous other articles adopt similar approaches to everything from hiring new employees, to finding activities to make yourself more visible to superiors, to choosing software for a project. Most present "mechanized" processes for dealing with particular issues in absolute, prescriptive ways.

Of the remaining 22 percent of *Intercom*'s articles that do not obviously fit into this conceptual system, most were simply indeterminable based on the subject matter and brief abstracts. They were items such as Gurudutt Kamath's "The India Paradox" (2000), which appeared in a special issue on international technical communication. Kamath's article, like numerous others, is described simply as a report on issues in a particular country. Other articles include primers on new technologies, overviews of particular pieces of software, and reviews of recent trends in the field for students—in short, articles that might well participate in the Positivist metaphor system, but which did not demonstrate such participation without close analysis.

In fact, based on my examination of the STC's database of article titles and abstracts for *Intercom*, only one article *overtly* adopted conceptual systems other than the objective, mechanical one addressed thus far. The article is "How to Attend a Conference" (1998) by S. I. Hayakawa, which

> offers advice on active conference participation based in semantic theory. In light of the wealth of conflicting meanings, he recommends that speaker and listener develop a dynamic relationship in which terminology is continually redefined so that specific meaning emerges from the context.

Several things about this article make it worthy of mention. First, its author is a well-known scholar of semiotic theory; it is unusual for *Intercom*'s articles to receive any lengthy theoretical grounding, let alone in material so specialized; the journal is aimed at the busy professional, and its average audience member is unlikely to have much background (or interest) in hardcore academic language theory. Second, the article is a reprint of an older publication by Hayakawa; *Intercom* is a journal that devotes itself to the most current issues and practice, and this kind of delving into the past is highly unusual in its pages. Third, the author's approach to language and communication is quite different from the other articles. Hayakawa articulates a theory of symbols and meaning in direct opposition to the Positivist metaphors. Communication is not a direct transfer from transmitter to receiver; instead, it can only happen if both parties are actively engaged in continual redefinition. Knowledge is not an independent object stored away and waiting to be found, but is, rather, quite elusive; meanings are numerous

and incongruous. In fact, the central term of his discussion—"meaning"—stands in direct contrast to the idea of "knowledge" as it is expressed in the other practitioner texts we have examined. "Knowledge" exists independently of any agent; "meaning" cannot exist without agents. In Hayakawa's model, nothing is built, constructed, or otherwise engineered—instead, a context-specific meaning "emerges" from the collective engagement of participants. Communication is a chaotic process, always on the verge of spinning into disorder.

I draw attention to Hayakawa's article because its conceptual system stands in such stark contrast to the system of metaphors typically found in *Intercom*, and it seems to stand alone. There are very likely other articles which adopt similarly atypical understandings of communication, but none do so in the same overt manner as Hayakawa's. The vast majority of articles in *Intercom* participate in the Positivist metaphor system.

The situation in *TC* was less starkly one-sided, but showed a similar tendency toward Positivist metaphors. During the same 1996-2002 time period, there were 110 feature articles published in TC, of which 70 (68%) were overt participants in the Positivist metaphor system. For example, Duane E. Sherwood's "Technical Documents as Information Systems" (1997) resonates with Applen's ideal of the clockwork text that creates (or recreates) itself. Stephen Chu's "The Possibilities are Wireless: Designing and Delivering Information in the Wireless Space" (2002) is concerned both physically and metaphorically with the transfer of "packets" of information. In "Making Manuals Obsolete: Getting Information out of the Manual and into the Product" (1998), Carol

Millar advocates an approach to design that, while aiming for a more interactive, context-based interface between product and user, also firmly grounds her understanding of communication in Positivist metaphors. The list of articles that fit this model is extensive.

There are, of course, counterexamples of articles that actively position themselves outside the paradigms of the Positivist metaphor system, and in greater numbers than in *Intercom*. I have already discussed one example: Dragga and Voss espouse using technical communication graphics as a vehicle for social change in "Cruel Pies: The Inhumanity of Technical Illustrations" (2002). Similarly, in "Authority and Audience-centered Writing Strategies: Sexism in 19th-Century Sewing Machine Manuals" (1998), Katherine Durack shows the capacity of technical communication to reinforce marginalizing narratives, and challenges writers to avoid this pitfall. In these and other articles, the authors move beyond the issues of "designing" communication and "managing" information transfer, and instead adopt a context-dependent view of communication that does not cohere well with the Positivist metaphor system. And while these counterexamples are more numerous in *TC* than in *Intercom*, they are still outnumbered by the articles which overtly espouse Positivist metaphors.

One of the most interesting—and potentially most important—aspects of the patterns of metaphor in practitioner discourse is the fact that those articles which are most radically outside the Positivist metaphor system are less likely to be as readily applicable or "practical" as the majority of articles in *TC*. To put it another way: those articles which attempt to be practical in application are "successful" in direct relation to

the extent to which they embrace Positivist metaphors. Durack provides an historical analysis that offers insight, but only vaguely nods toward applying her observations to everyday technical writing; Dragga and Voss show a weakness in widely-accepted theory about the ethics of visual display, but their attempts at application are so generalized that they completely fail when faced with the needs of real audiences. It would be far too reductionist to claim that there is a simple dichotomy between metaphors that lend themselves to the language of theory and metaphors that lend themselves to the language of practice—but there is clearly a correlation between the Positivist metaphors and the ways that technical communicators talk about practice.

The Language of Practice: Going Beyond Practitioner Texts

We can see this connection between Positivist metaphors and the language of practice played out most openly in texts that attempt (as Applen does) a more complex juggling of theory and application.

A case in point is Johndan Johnson-Eilola's "Relocating the Value of Work: Technical Communication in a Postindustrial Age," one of the works cited by Applen as a basis for his arguments about the changing nature of the technical communicator's workplace roles. This article was written by Johnson-Eilola at about the same time as his work with Selber on expansive and contractive communication technologies, and it appeared in *Technical Communication Quarterly*, a journal aimed at academics and teachers of technical communication. Though its audience is somewhat different from the practitioners we have been considering thus far, this article makes an interesting text for analysis because it addresses many of the same kinds of issues raised by Applen and

the other practitioner articles, and demonstrates even more clearly the shift in conceptual metaphor that takes place when technical communicators move from talking about theory to talking about practice.

Johnson-Eilola argues that, even in the modern economy which ostensibly values information as the currency of choice, current communication models still rely upon an outmoded, industrial hierarchy in which technological products are elevated over information and communication. His goal is to show that "rearticulating technical communication in post-industrial terms provides a common ground between academic and corporate models of technical communication" (p. 245). He pursues this rearticulation by arguing that technical communicators must learn to think about their work in ways that incorporate both industry needs and academic values, and suggests that a suitable theoretical grounding can be found in Robert B. Reich's definitions of service work—a topic that is important in Johnson-Eilola's other publications with Selber (and Cynthia Selfe), but which he addresses most fully in this article.

First, Johnson-Eilola shows the subordination of information to technology by demonstrating that technical communication has always filled a support role, in both industry (as an afterthought to the "real" work of design and manufacturing) and the academy (as a training ground for meeting the hiring needs of industry rather than as a unique rhetorical undertaking) (pp. 246-247). He also shows that this support model has serious consequences. Among professionals, the support model results in technical communicators typically occupying a low position in the corporate hierarchy, as mere polishers of texts rather than decision-makers or other authorities in the design and

development process. Among end users, the support model results in "[t]he common practice of instructing users in functional but not conceptual aspects of technologies" (p. 249).

Johnson-Eilola suggests breaking out of this support model by redefining technical communication as symbolic-analytic work, one of the three categories of service work outlined by U. S. Secretary of Labor Robert Reich: Routine Production, or manufacturing things; In-Person Service, which involves interacting directly with customers; and Symbolic-Analytic Work, dealing primarily with the manipulation of information (p. 253). Currently, technical communicators views themselves as performing tasks that occupy all three of these categories; Johnson-Eilola argues that this ambiguity of purpose is what keeps technical communicators locked into a support position and causes tension between the academy and the workplace. The "technical" focus of technical communication has completely overwhelmed its primary function as communication; it has become more about technology than about human interaction. By contrast, says Johnson-Eilola,

> symbolic analysts make it clear—to themselves, to their employers, to the public—that in an age of ubiquitous technology and information knowledge attaints primary value. Refocusing on communication also authorizes an expansion of technical communication. If technology use is replaced with broader conceptions of work, then users' 'tasks' are no longer simply low-level, machine-reliant functions, but contextualized, real-world projects. (pp. 255-256)

Thinking about technical communication in terms of symbolic analysis means moving away from preoccupation with the manufacture or production aspects of workplace writing, as well as the rather one-sided and antagonistic attitude created by a marketing or sales perspective on work, and toward a simpler focus on the technical communicator as a participant in situated human interaction. To be a technical communicator, according to Johnson-Eilola, is to be engaged in an activity that is primarily about relationships between people.

Like Applen, Johnson-Eilola is pursuing a change in how technical communicators and their work are perceived, but the scope of Johnson-Eilola's argument is wider, including the academy as well as industry. And while Applen uses broad social arguments to discuss particular uses of a specific technology (i.e., XML), Johnson-Eilola has little to say about particular practices or individual technologies, focusing instead on the broad social arguments that he would like academics to consider in their technical writing courses. But despite differences in the ways these two authors pursue their arguments, there are striking similarities in between the two articles; though Johnson-Eilola writes for an academic audience, his argument is unequivocally "practical" in its attempt to change the ways that technical writing instructors approach their teaching strategies. In Applen's article aimed at practitioners, we saw an attempt to articulate a broad humanist social agenda undercut by mechanistic, positivist metaphors for language and communication. Johnson-Eilola develops a much more thorough theoretical model for his agenda, but he demonstrates a similar tension in the metaphors he uses.

Though he has articulated his goal for the technical communicator as a movement away from industrial models of communication toward a perspective that is more interactive and communal, Johnson-Eilola seems almost as firmly entrenched in the Positivist metaphor system as any of the practitioner-authors examined earlier. In his introductory paragraph, Johnson-Eilola argues that "we live and work in an increasingly post-industrial age, where information is fast becoming the more valuable product. Products are still manufactured and purchased, but, in a growing number of markets, primary value is located in information itself" (p. 245). The metaphors here remain spatial and economic, virtually identical to those used by Applen and Berger. While Johnson-Eilola even emphasizes the physicality of manufactured products as a point of contrast, information appears constrained in a physical metaphor, as a place in which value can be located. Moreover, the entire passage is concerned with contrasting the old industrial marketplace with non-industrial symbolic analysis—the movement from physical objects generating income, to information generating income. Johnson-Eilola seems determined to talk about technical communication in monetary terms. Even his title, "Relocating the Value of Work," feeds into these conceptual patterns, despite being set up as a contrast to the status quo of everyday technical communication..

When Johnson-Eilola develops and explains his thesis—i.e., that redefinition as symbolic-analyst is the means to change the role of the technical communicator—his definitions draw him further into the Positivist metaphor system.

> Symbolic-analytic workers possess the abilities to identify, rearrange, circulate, abstract, and broker information. Their principal work materials

> are information and symbols, their principal products are reports, plans, and proposals… [they] make it clear—to themselves, to their employers, to the public—that in an age of ubiquitous technology and information, knowledge attains primary value. (pp. 255-256)

This description could almost be exchanged with that of Reich's Routine Production, with "information" substituted for the raw materials of blue-collar labor. Clearly, in Reich's hierarchy, the basic mechanisms of capitalism are the same from steel plant worker to software developer—everything involves the production and consumption of crafted goods. It seems strange, then, that Johnson-Eilola would choose this metaphor of the production and consumption of information as a way out of the stagnant industrial models of communication that he denigrates in his opening paragraphs.

As he attempts to articulate new teaching methodologies that might be employed by technical communication instructors, Johnson-Eilola enters a state of metaphorical dueling with himself, embracing two entirely different conceptual systems which undercut one another and prevent him from achieving the post-industrial sensibility he claims as his goal. He outlines four areas of education that Reich claims are fundamental for symbolic analysts, and argues that these offer technical communication instructors opportunity particularly suited to "reinventing" technical communication: these areas are collaboration, experimentation, abstraction, and system thinking (p. 257). Experimentation, for example, has to do with "forming and testing hypotheses about information and communication" (p. 258). Typically involving usability studies and workplace ethnographic observation, these kinds of inquiries are usually approached as

objective, scientific testing; Johnson-Eilola, however, argues that experimenters should be “less concerned with discovering universal, static truths about users than constructing shared accounts of situated understanding and social action and maps that can help both technical communicators and users negotiate and navigate social realms” (pp. 258-259). His interest is clearly in the subtle intricacies of human communication; this is an ethic that locates meaning in a social context, and values equity in interaction. But in the same sentence in which he discusses “shared accounts of situated understanding,” he slips into a physical metaphor that locates communication as a physical interaction, movement through a plane that can be mapped and plotted. Successful communication is built like a physical structure, and relies on successful manipulation of signs. These are metaphors that move away from the immediacy of human contact and cooperation that make up Johnson-Eilola’s idealized goal for technical communicators.

Each of the other skills described by Johnson-Eilola receives the same treatment; he argues that technical communication students trained in these skills will be better equipped to approach their work as symbolic analysts (rather than producers or merchants) and thus communicate more effectively, but then undercuts his own argument by returning to metaphors that favor a service model of technical communication and a linear understanding of communication in general. The skill of abstraction, he argues, “requires students not merely to memorize information but also to learn to discern patterns, relationships, and hierarchies in large masses of information” (p. 260). The context-centered thinking that Johnson-Eilola values in symbolic analysis is clearly represented here in his focus on connection and the general interrelatedness of

different kinds information—networks and webs are popular metaphors among academic writers, as we will see in the next chapter. However, even here Johnson-Eilola echoes Applen's tendency to portray information as a concrete object occupying space and requiring physical manipulation. Seen in this light, the more organic notions of webs of information become lost in the image of a technical communicator working a vast communication puzzle, plugging pieces into their appropriate and pre-determined slots.

What we find repeatedly is that Johnson-Eilola participates in two entirely different conceptual systems for technical communication: one that grants priority to efficiency, practical utility, and commercial success, and another which grants priority to individual empowerment and social responsibility. Perhaps he finds himself in this conflict because of his purpose—his is an attempt to balance the practical considerations of industry and education with a political agenda that actively questions the ethical foundations of those practical considerations. Or perhaps his conflict arises out of the dual audience of practitioners and academics to which he is writing. In either case, it seems to be an unconscious balancing act; Johnson-Eilola shows no awareness that he is participating in multiple conceptual systems, or that he undercuts his own argument at every turn.

In this chapter, I have tried to demonstrate that practitioners of technical communication use a distinct and coherent set of metaphors that permeate their conceptual system about the work they do. What complicates practitioner discourse is the fact that the most common conceptual system favors language rooted in models of communication that run counter to the values that practitioners espouse—mechanistic

and economic metaphors that treat knowledge as a physical object to be manipulated and used for monetary gain, running completely counter to the humanist goals found in practitioners' discussions of rhetoric and social responsibility. There seems to be, in some ways, an inevitability to the language of practice; even academic writers who attempt to make their work applicable in specific contexts find themselves slipping into Positivist metaphors, often destabilizing the theoretical underpinnings of their arguments. What we will explore in the next chapter is the extent to which academics and scholars consciously adopt a different set of conceptual metaphors that creates a different ideological dynamic within their working out of technical communication theory.

CHAPTER III

BODIES AND VOICES IN CONFLICT: CONCEPTUAL METAPHORS IN ACADEMIC DISCOURSE

Practitioner discourse, I argued in the previous chapter, tends toward a specific set of conceptual metaphors which I referred to collectively as the "Positivist metaphor." In general, the Positivist metaphor carries with it assumptions that lead to thinking about language, writing, and human interaction in mechanical and spatial terms: writers become builders, texts become machines, and readers become receptacles for transferred bits of knowledge. I also demonstrated that these metaphors exist in a state of sharp conflict with some practitioners' stated theoretical goals—leading practitioners to discuss new technologies (such as single-sourcing or XML) as simple tools for addressing old problems in the same old ways rather than as a means to think about both the problems and methods of solution in new ways. Thus, the Positivist metaphor system is ultimately a limiting factor on technical communication practitioners, encouraging specific lines of thought and action while precluding others.

In this chapter, my goal is to examine "academic" discourse in technical communication—the writings of theorists, teachers, and scholars engaging academic rather than practical questions in the discipline—to determine the extent to which it mirrors or diverges from practitioner discourse. My expectation was that academics, particularly those in this field with its close relationship to rhetoric and composition, would be more intimately acquainted with the potential pitfalls of language and more

aware of ways to avoid being caught up in conflicting meanings and contradictory assumptions; moreover, because of academics' longstanding disconnection from industry, I expected to find them using a somewhat different set of conceptual metaphors as either a cause or consequence of this disconnection. However, what I found in my research was much more complicated. As I will attempt to demonstrate, there are indeed very different metaphors at work in academic discourse, and these, in turn, move academics rather sharply away from the concerns evident in practitioner discourse. However, the Positivist metaphor lingers on, appearing in unexpected, but surprisingly organized, ways. Based on these findings, I will argue that there is a close connection between the metaphors employed by academics and the particular aspects of the Positivist metaphor that manifest themselves in academic discourse. To put it another way: there are moments of intersection between the metaphors favored by academics and the metaphors favored by practitioners, and these connections offer us a means to talk in different ways about the rift between the technical communication industry and academy. The format of this chapter will look much like the previous one: I will begin with an analysis of several academic articles in order to underline the key conceptual differences between these and practitioner texts, and will then trace out some of the connections among the central conceptual metaphors favored by academics. I will follow the analysis with a more quantitative examination of this conceptual system in academically-oriented journals.

The first issue, however, is to clarify a point of definition. Until now, I have been discussing the division between practitioners and academics as though there were clear

camps at odds with one another. In reality, the difference between these two groups is often somewhat muddled. There are many individuals who participate (and publish) in both communities, working for the academy as professors while also working for industry as writers, editors, and consultants, or moving in and out of these communities at different points in their careers; it becomes difficult to categorize anyone definitively. The most useful distinction is simply audience: a writer is a academic when writing specifically for a scholarly audience about research or intellectual inquiry, and a writer is a practitioner when writing specifically for other practitioners about application of that research or intellectual inquiry. But even this distinction is problematic, because many writers address both audiences, advocating inquiry but also suggesting application. It is impossible to avoid this gray area between the groups—but this should not be perceived as troublesome. I would argue that it is in this gray area we are most likely to find the roots of conflict, and trace out the factors that have led to the "clear" and "obvious" division of these two groups of people whom we should expect, as participants in the same field of study, to be much more closely engaged with each other. For the purposes of this chapter, I am in some ways forced to continue talking as though practitioners and academics are entirely different animals, but it should be remembered that this merely a concession to the necessities of coherence.

Metaphors of Agency

As we saw in the last chapter, one of the hallmarks of the Positivist metaphor is a tendency to use language that turns people into automatons and texts into machines. All participants in and aspects of communication become objectified; only writers maintain

any sort of agency, and even that becomes mathematical in its execution. By contrast, academic writers adopt what we might call metaphors of agency. These are metaphors that position not only writers, but also readers and texts as subjects rather than objects, as active participants in a dynamic and chaotic interaction that bears little resemblance to the model of communication found in practitioner texts. Such a change in metaphors may seem unsurprising—after all, this more dynamic understanding of communication is a staple of rhetorical theory, and practitioners would recognize and actively embrace it consciously (regardless of the fact that they tend to undercut it in various ways). However, the academic metaphors of agency are worth exploring because they help demonstrate the full extent of the differences in conceptual systems between academics and practitioners.

An excellent example comes from the July, 1997 issue of *The Journal of Business and Technical Communication*, which included an article by Carol Leininger entitled "The Alignment of Global Management Strategies, International Communication Approaches, and Individual Rhetorical Choices." Leininger examines organizational communication at the international level, and is particularly interested in its internal, rather than external, aspects; almost completely ignoring issues related to international customers or clients, she instead focuses on the ways that corporate communication happens across its entire hierarchy, from the boardrooms down to the individual writer in the local office. She outlines four levels of influence at work on an organization's communication: its global mission, global management strategies, international communication approaches, and individual rhetorical choices. She argues

that organizations have the greatest potential for success when these various levels are all working toward similar ends; if international workers do not receive training that "aligns" their communication strategies with the company's larger goals, then the organization will be weakened in its own internal functioning.

What follows is a somewhat lengthy summary, but it illustrates the extent to which Leininger's discussion of business communication is centered around issues of agency. Leininger devotes the bulk of her analysis to the two central levels of organizational communication. First, she briefly outlines three international communication approaches which are most commonly applied to discussions about international customers, but which she appropriates and applies to internal information for workers. Theses approaches are *localization* (members of a particular culture or group create texts solely for other members of that culture or group), *internationalization* (culturally-specific aspects of texts are eliminated so that those texts will function universally), and *globalization* (texts are designed from their first inception to be easily modified/expanded as needed in different cultural settings) (pp. 264-265). She then discusses four broad global management strategies that she labels *ethnocentric* (all territory receives the same texts/goods as the organization's originating "home" territory), *polycentric* (operations are decentralized, with major functions like manufacturing handled by each local area), *geocentric* (the organization has no home territory or head branch, and is an international entity with only a truly global market), and *heterarchic* (the organization lacks a traditional hierarchy, with operations being run by numerous individuals working in concert) (p. 265 ff.). She attempts to show that,

based on an organization's management strategies, the different communication approaches will be more effective and more easily accomplished. More importantly, most organizations fail to consider the extent to which workers and managers may need special training to function effectively within the constraints of these communication approaches and management strategies.

Leininger's argument is a fairly standard representative of academic writing, addressing problems at the abstract level, focusing on only particular aspects of an issue, and acknowledging the need for more research. However, the conceptual metaphors present in her article stand out in sharp contrast to the Positivist metaphor that runs so pervasively throughout practitioner discourse. One of the more obvious metaphors, beginning in the title and running throughout, is an equation of communication with conflict, in this case military engagement—strategies, missions, support, expansion, control and opposition appear continually as part of a subtle metaphor, never carried to extremes, but nonetheless significant. Consider the following paragraph, in which Leininger explains her model of communication in the corporate environment:

> Although in this framework support is always bi-directional, influence is not; except in one instance, influence is top-down. The global management strategies (at the second level) influence the kind of communication approaches that can be taken, and the organization's communication approaches (explicit or tacit) influence individual's rhetorical choices. Only at the two top levels is influence reciprocal, because the effectiveness and success of an organization's global

> management strategies will affect how an organization achieves or even reconceptualizes its global mission. In summary, the individual international writer has the power to support but not to change the strategic direction of the organization.

Leininger's model of corporate communication focuses on hierarchies of authority and the lines of influence between them. The upper levels of the organization exist to draw up plans, consider avenues of attack, marshal troops, and direct their actions. The goal of the individual writer, a front-line trooper rather than a war-room planner, is to adapt to and comply with the prevailing lines of influence for the good of the organization as a whole. According to this model, communication failure occurs when subordinate levels within the authority structure do not align their actions with the mission objectives of the upper hierarchy. This metaphor is a subtle constant throughout Leininger's argument, and it reflects a very different conceptual understanding of the writer's task than that found in practitioner discourse. Here, the corporate writer is not an engineer building vast structures, but a soldier carrying out battle plans. It is a metaphor of human conflict rather than mechanical construction.

Similarly, Leininger's readers (in this case, other individuals within the corporate hierarchy) are not passive recipients of preconstructed information. They are people performing actions, making decisions, working toward particular ends—and, moreover, having particular agendas that lead to conflict with the organization's agenda. They do not collect discrete packets of data, but rather engage with situations and texts to form meaning and choose among alternatives. All mentions of "trouble" within Leininger's

idealized communication model are related to individual employees who do not align themselves with upper management's plans and goals; the organization's best response is to align those individuals through training—essentially, to persuade the individuals to the desired course of action (p. 276). However, Leininger also mentions the benefits of non-conforming individuals to the organization's health. She suggests that voices of dissent prevent the imposition of a monolithic perspective, and that "[w]ith too much uniformity, the organization risks being unresponsive to changing circumstances and missing emergent opportunities" (p. 276). Leininger talks in terms of general communication rather than written texts, but her avoidance of the Positivist metaphor is still significant. Rather than discuss individuals as cogs in the corporate machine, she uses metaphors of personal interaction which suggest that readers have individual will and that information is something organic in the life of the organization. "Knowledge" is not an abstract thing that is passed around from person to person instantly producing new behavior; "information transfer" becomes, in her language model, a process of human interaction.

Perhaps most notably, there are no machines or clockwork texts to be found in the article. While there are a few instances in which Leininger moves toward the Positivist metaphor—as when she briefly discusses a translated text's capacity to "reflect information provided by the source company" (p. 269)—she almost completely avoids describing texts as physical objects or artifacts of a writer's work. Leininger most often includes texts as part of her more general discussion of communication strategies and approaches appropriate to different international communication issues. She is primarily

interested in the nuances of interacting with multicultural audiences, and therefore discusses miscommunication in terms of differing expectations and experiences, rather than a more mechanistic transfer of information that is flawed or incorrect (p. 275). In Leininger's world, texts do perform work, but not as individual entities; instead, texts become a form of conversation, direct dialogic interaction between multiple individuals in an effort to reach consensus about actions and ends—it is this alignment of ends that she cites as the motivating factor for her research (pp. 261-262). Thus documents, too, attain a sort of metaphorical agency in Leininger's article. The things that people write are extensions of human bodies and reflections of human goals.

Finally, Leininger repeatedly uses the metaphor of the "global marketplace." Similar references appear throughout practitioner discourse, and in many cases they serve to reinforce the Positivist metaphor, suggesting that communication is the mere trading of goods and services. In Leininger's case, however, the marketplace metaphor coheres with the rest of her article; texts are not commodities being bought and sold—in fact, there is virtually no mention of "value" in the article at all, which is highly surprising given the corporate focus of her subject. Leininger moves beyond issues of buying and selling to portray an idealized space in which people interact for mutual benefit and toward mutual ends. She suggests that

> [b]usinesses are interested in making the global marketplace work well. In recent decades, their efforts to do so have expanded beyond successful trade in raw materials, processed goods, and services such as transport

> and consulting to include intellectual and financial collaboration in high-end technology development and joint ventures. (p. 261)

Ideas are not mere commodities here. Nor are the individuals involved anonymous participants in mercenary exchange. Leininger suggests close personal, physical interaction that is not competitive, but rather motivated by mutual benefit. This is a very different setting than the marketplace found in practitioner discourse; she assumes collaboration that is about neither mechanical efficiency nor monetary profit—the twin hallmarks of the Positivist metaphor—but instead about unity of purpose.

Inevitably, there are moments in Leininger's article when she slips into the Positivist metaphor—but they remain the vast minority, and seem to occur mostly in her introduction when setting the stage for her argument. When actually discussing her communication model, she manages to avoid the Positivist metaphor almost entirely. Compared to the discussions of "knowledge bases" and "information mapping" found in practitioner texts, Leininger's focus on metaphors of human interaction and her tendency to grant agency to all participants in the act of communication marks out an entirely different conceptual system. These metaphors of culture and human contact are profoundly different than the metaphors of machines and maps used by practitioners.

Metaphors of Presence

Like Leininger, other academics use similar metaphors of human interaction and contact, but carried even farther than mere agency. In particular, metaphors that substitute a text for a physical body are quite prevalent. In "The Voices of English Women Technical Writers, 1641-1700: Imprints in the Evolution of Modern English

Prose Style," Elizabeth Tebeaux examines the early development of the "plain style" tradition in English, demonstrating its existence in the utilitarian writings of women in the mid-17th century, well before Francis Bacon and the Royal Society began advocating the plain style. Tebeaux's article, published in *TCQ* in 1998, examines the writings of eight women, focusing on procedural guides and other texts that are recognizable to the modern eye as examples of technical communication: maternal advice books, as well as guides to medicine, beauty aids, and household management. She demonstrates that these writings contain many of the grammatical and syntactical features typically associated with the plain style: subject-verb-object/complement word order, readability, and certain "spoken qualities of language" (p. 128). Her purpose is to show that the plain style did not achieve prevalence or popularity because of the advocacy of the scientific community (ala Bacon and others), but rather because of the necessities of many more practical kinds of texts in which writers gave advice about "how to live and how to perform work" (p. 149).

This notion of plain, speech-like writing hooks into a metaphor common among modern composition theorists (and more generally, academics in the humanities)—that of the writer's "voice," the written word as speech, the text as a lesser-but-serviceable substitute for the physical presence of the author. Tebeaux even discusses the idea in her description of the features of plain style; she argues that

> the oratorical style (*genus grande*), the medium of public forums, was less suitable to the needs of a newly literate reading public in the late English Renaissance. The result was the elevation of the plain style in

> increasing numbers of works. The grand style… did not satisfy the inward ear of the solitary reader. Heard solely by the reflective mind, and not in the public forum, it was often empty and artificial and non-conducive to use by either the Chancery clerks or by individuals writing instructions. (p. 129)

The simple, orderly plain style was able to give to the isolated reader something that the flowery language of public debate could not: a reasonable approximation of the human voice. It is, perhaps, an obvious metaphor, as old as the *Ad Herennium* and a natural-seeming extension from our conceptual system about vocal communication to the act of writing. However, "voice," in turn, has become a powerful metaphor in academic circles, standing in for basic ideas about respect, social influence, and intellectual liberty.[1] To write is to have a voice; to have a voice is to be an individual and exercise a kind of freedom that stands in opposition to imposed, monolithic views. The text becomes an emblematic extension of the author's freedom, speaking in more places and times and to more people than the author can in person. Thus, for Tebeaux's discussion of Renaissance women writers, the idea of "voice" really carries two layers of metaphoric meaning: the writer's power to resist silencing or marginalization, and the text's capacity to stand in for the writer exercising this freedom.

Unlike many scholars who discuss issues of voice, Tebeaux takes the metaphor of physical presence and makes it an organizing aspect of her argument, tying the development of textual features of certain kinds of technical documents to the voices of women writers and, by extension, to the social status (or the changes in social status) of

women late in the Renaissance. Intentionally or not, she focuses closely on the ways a text becomes an aspect of the woman herself, an extension of her physical body. Like Leininger, Tebeaux adopts her metaphors in the title of the article; it is clear from the beginning that this discussion about stylistics will be approached as an exercise in listening. Both writer and reader are posited in a conversational space, and Tebeaux leads us in a sort of eavesdropping on conversations held centuries ago. For example, she discusses several maternal advice manuscripts, including Elizabeth Jocelin's book recording educational guidelines and advocating the benefits of virtue addressed to her "vnborne childe," and a treatise by Elizabeth Grymeston, written as she lay dying and addressed to the only survivor among her nine children (pp. 132-136). In these and other cases, the manuscripts are not only instructions and guides, but also literal substitutions for a mother's presence later in a child's life. In Tebeaux's readings, the advice books capture tones of voice, attitudes, and nuances of feeling that make them far more than sterile instructions. Similarly, Tebeaux also discusses medical "receipt" books written by women; because families in the Renaissance had little access to physicians, these pharmaceutical textbooks embody and extend a social ethic that placed great responsibility on their female writers and readers as keepers of popular medical knowledge and guardians of the family's health. None of the texts discussed by Tebeaux are treated as objects or repositories of static information; they are always conversations among people fulfilling social roles and participating in a cultural milieu.

Even Tebeaux's treatment of the plain style itself is unusual. The study of style is almost by definition a Positivist undertaking, based on the assumption of a mechanics of

language that can be disassembled into component pieces in order to understand their functions.[2] The plain style lends itself to a transfer model of communication; the primary benefit of plainness is understood to be clarity, an aid to reconstructing some original meaning that is not clouded by grand language, and the modern popularity of the plain style becomes, according to scholars in the 20th Century,[3] a consequence of the need for objective, thoroughly representative language in scientific writing. Tebeaux nods toward this Positivist understanding of language, noting in her literature review that "plain style keeps subject, verb, and object close to one another in the sentence unit, avoids aureate, sensuous modifying words, phrases, and clauses. The plain style delivers its message efficiently, even bluntly, without augmentation or tautology" (p. 128). In short, the plain style is direct transmission of meaning, dissociated from the clouding language of bodies. However, after suggesting that many of her selected women writers exemplify these traits of the plain style, Tebeaux proceeds to subvert the Positivist metaphor by maintaining her metaphors of physical presence that emphasize dialogue and human agency, rather than transfer and mechanical operation. She constantly refers to the Renaissance manuscripts as telling or speaking, and to audiences (both the original and her own) as listening or hearing. Her linguistic analyses of the manuscripts refer as much to rhythm and diction as they do to subjects and complements, and she tends towards defining moods and attitudes (curt, trenchant, deliberate, confident) in addition to language patterns. In short, Tebeaux circumspectly demands that these texts be listened to as well as read, treated not as dead objects but as living echoes of the women who wrote them.

Metaphors of Complexity

There is a third grouping of conceptual metaphors, more subtle than the metaphors of agency and presence discussed above, and less easily highlighted in academic texts; they are, however, quite important because they demonstrate yet another instance in which academic discourse varies markedly from practitioner discourse. We might call these metaphors of *complexity*—metaphors that address the nature of organizations, systems, and processes.[4] Scholars in many disciplines have begun to examine "complex systems," which are marked by self-organizing behavior across a group of people, creatures, or objects, but without the guidance of any particular individual or controlling force. Patterned behavior "emerges" from the combined interaction of dissimilar and independently-operating parts in ways that cannot be explained except as a result of the behavior or motion of the conglomerate whole. Margaret Syverson offers a definition:

> In a complex system, a network of independent agents—people, atoms, neurons, or molecules, for instance—act and interact in parallel with each other, simultaneously reacting to and co-constructing their own environment… Complex systems are also adaptive… [and] dynamic, more unpredictable, spontaneous, and disorderly than a machine, more structured, coherent, and purposeful than utter chaos (Syverson, pp. 3-4)

Complex systems are not entirely predictable, nor are they entirely chaotic; they exist somewhere in between those two states, and cannot be examined or understood except as coherent wholes. Certain complex systems are widely studied—the behavior of groups

of people, the acquisition of language by the human brain, the balance maintained in ecosystems, and so on. Workplace activity, including both production and communication, as well as public policy discussions are often cited as examples of complex systems, and while practitioners tend to use Positivist mechanical metaphors for these complex social interactions (with employees or the public functioning like a controllable, though somewhat unreliable, machine, or managerial/governmental decision-making expressed in terms that resemble mathematical computer processing), academics use metaphors which tend to be more organic or biological.

There are several common metaphors that stand in contrast to those used by practitioners. The metaphor of the knowledge web (an organic stand-in for the more mechanical computer network metaphor for distributed knowledge) has become so common as to be virtually ubiquitous in academic discourse. And just as academics like Tebeaux use physical metaphors of presence and the body for texts and the act of reading, academics also use these kinds of metaphors in order to describe complex social interactions. For example, comparisons between the efficiency of an organization and the healthy working of a body are quite common; Carol Leininger (in the article I examined above) discusses several management communication styles in the corporate setting, and consciously chooses a metaphor comparing decentralized authority within a business firm to the functioning of a single human brain (p. 273-274).

A more extended example employing metaphors of agency and presence can be found in Robert Patterson and Ronald Lee's "The Environmental Rhetoric of 'Balance': A Case Study of Regulatory Discourse and the Colonization of the Public," published in

the winter 1997 issue of TCQ. Beginning with the term "colonization" (with all its political and social connotations), Patterson and Lee set a tone that they maintain throughout the article, surreptitiously replacing a Positivist conceptual system with their own humanized one. Their article is actually an analysis of the rhetorical use of metaphor in a 12-year-long social policy debate about the relicensing of Nebraska's Kingsley Dam. Patterson and Lee discuss the metaphor of "balance" that prevails in policy discourse when "the regulatory regime assumes that… the public good is served by prescribing an outcome which partially satisfies all legitimate groups" (p. 26). Balance becomes a god-term that "evokes the powerful American ideal of pluralism without designating any mechanism for weighing competing claims" (p. 26), thus leading to debates in which all sides can claim to be voicing a position that must be considered in the quest for the greatest distributed good. However, in such a rhetorical setting, any partisan position that is not willing to be subsumed under the larger goal of balance can be dismissed as "uncooperative, unproductive, and unreasonable" (p. 26). Patterson and Lee's analysis quite clearly shows the metaphor of balance in a Positivist light; they argue that it "systematically places the empirical, rational, and instrumental on the scale and removes the moral, aesthetic, and expressive from the other side" (p. 36) in a sort of Bentham-esque utilitarian calculus that reduces ethical positions and social responsibility to economic values and weights. In such a rhetorical milieu, argue Patterson and Lee, the rhetor is reduced to the role of an umpire judging impartially among equally valid positions. All agency is removed from the decision-making process except that of the ideal of balance itself—but the metaphor cannot function as an agent

because it contains no built-in process for implementation. The rhetorical debate becomes mired in subjectivity because "the justificatory ethos of technical decision making depends on… the separation of agency from the contaminating subjectivity of agent and purpose" (p. 31). To the regulatory regime, the public must be merely another factor or variable in the utilitarian calculus, and it is this fact that forms the central thrust of Patterson and Lee's arguments. The regulatory regime's authority is only legitimated by the ideal of the public good, but the metaphor of balance diminishes the importance of the public among other competing interests while also cloaking that diminishment by connoting "a [decision-making] process that is simultaneously precise and fair" (p. 35).

In making their argument, Patterson and Lee not only perform a sophisticated analysis of the metaphorical connotations of the rhetorical appeal to balance, but at the same time metaphorically reframe the complex interaction of political authorities, corporate entities, and the voting public as an interaction among individuals with needs and agendas, rather than the functioning of an idealized objective political machine. They recast the abstracted fairness of regulatory decision-making as a power struggle among people competing for social leverage, and portray political activism as face-to-face communication. As with most articles we have examined, the first overt metaphor occurs in Patterson and Lee's title, in which they refer to the rhetorical diminishment of the public as "colonization," a word that has rather profound theoretical implications of both conquest and change, of a place physically occupied and a people politically subsumed by a more powerful group. It is a metaphor which Patterson and Lee have clearly chosen consciously, and which they take up again with their constant labeling of

regulatory political bodies as “regimes”—a word that resonates with slightly sinister connotations of violence in addition to its overt denotations of rulership and control. It is also a metaphor of which they do not seem to be entirely in control—nowhere does the article clearly explain this image of political power struggle, or assign agency to some person or group with nefarious intent. Nevertheless, the title establishes a setting of physical conflict that is repeated in other metaphors employed by the authors throughout the article; in framing their conclusion, for example, Patterson and Lee resort to downright militaristic terms, talking about finding “rhetorical point[s] of entry” and confronting “sites of resistance” (p. 37). They also carry the tone of conflict into other metaphors, as when they refer to ideal political debate as “partisan bickering” and “noisy, raucous politics” (p. 37). By recasting the policy debate from its Positivist metaphor of balance and weighted values to a more humanized conflict among individuals engaged in loud discussion and physical struggle, Patterson and Lee attempt to shift the ethical center of policy debate away from governmental regulatory bodies and into the hands of an idealized, democratic public.

They do not, strictly speaking, adopt a single over-arching metaphor to encompass the complex system of policy debate; instead, Patterson and Lee undercut the Positivist metaphor of balance that can make policy debate a fruitless and ethically problematic undertaking. What this article does highlight, however, is the extent to which metaphors for complex systems completely dominate any consideration of those systems. Both academics and practitioners have their preferred metaphors which they bring to any discussion of complex systems; academic discourse, however, seems

generally more geared toward troubling those discussions with a variety of metaphors for complexity that force considerations of agency and ethical responsibility.

Tracing the Web of Academic Metaphors

Once again, we must brave the overtly Positivist activity of list-making in order to find patterns and connections among academic metaphors. As in the previous chapter, however, this is not an attempt to exhaustively trace metaphors through the English language, or even comprehensively through their permutations within academic texts. Rather, my goal is merely to show relationships and interactions, and to begin to explore the extent to which these systematic groupings of metaphor occur in academic discourse. Figure 2 contains a rough outline of the most obviously non-Positivist metaphors I have encountered in academic texts; for the sake of simplicity (and contrast), I have been referring to them collectively as the Humanist metaphors—a name once again borrowed from Carolyn Miller's attempt to articulate a humanistic vision for technical communication (1979).

COMMUNICATION IS PHYSICAL PRESENCE

COMMUNICATION IS DIALOGUE
- TEXTS ARE VOICES
- WRITERS ARE SPEAKERS
- READING IS CONVERSATION

COMMUNICATION IS VISION
- READING IS SEEING
- UNDERSTANDING IS SEEING
- OPINION IS POINT OF VIEW/PERSPECTIVE

COMMUNICATION IS PHYSICAL CONTACT
- READING IS PHYSICAL MANIPULATION (TOUCHING)
- READING IS PHYSICAL CONNECTION W/ THE WRITER
- IDEAS ARE TEXTURES
- TEXTS ARE BODY PARTS
- INTELLECTUAL COMMUNITY IS PHYS. COMMUNITY

COMMUNICATION IS TRAVEL/JOURNEY
- WRITING IS MOTION
- READING IS MOTION
- TEXTS ARE VEHICLES
- PROCESSES ARE PATHWAYS
- DISAGREEMENTS ARE MAZES
- DECISIONS ARE DESTINATIONS

COMMUNICATION IS AGENCY/(THE EXERCISE OF POWER)

COMMUNICATION IS CONFLICT
- DISCUSSION IS CONFLICT/STRUGGLE
- PERSUASION IS VICTORY
- SPEAKING/WRITING IS RESISTANCE TO OPPRESSION
- KNOWLEDGE IS POWER

COMMUNICATION IS ACTION
- READERS ARE DECISION-MAKERS
- WRITING IS CHOOSING
- WRITING IS EDUCATION
- READING IS LEARNING
- TEXTS ARE ACTIONS

TEXTS ARE IDENTITIES

COMPLEX SYSTEMS ARE ORGANIC

MEANING IS EMERGENCE

RELATIONSHIPS ARE WEBS

CHANGE OVER TIME IS (ORGANIC) GROWTH
- CHANGE OVER TIME IS EVOLUTION
- TEXTS ARE BIOLOGICAL RECORDS

Figure 2. Humanist Metaphors in Academic Discourse.

Unlike the practitioner metaphors considered in the previous chapter, these Humanist metaphors do not all clearly relate to each other or form a tidy pyramid; they demonstrate a noticeably wider variety of conceptual systems among academics. However, what they do share is an obvious lack of certain features of the Positivist metaphors. Michael Reddy's "conduit" model of information transfer is conspicuously

absent, as are most of the objects and abstract nouns that one finds running through the Positivist metaphors; most of the Humanist metaphors involve purposeful actions rather than abstract forces, and active agents rather than passive things. Numbers, weights, and mathematical relationships are replaced by moving, talking, touching, seeing—as the chart shows, human bodies are a central focus of these metaphors, which consistently diminish the distance and separation inherent in the typical author/reader/text interaction.

Testing the Model: Six Years of Academic Articles

As with the practitioner texts, in order to determine the extent of the Humanist metaphors in academic discourse I examined six years (1996-2002) of articles in two prominent technical communication journals that cater more directly to academics: *Technical Communication Quarterly* (*TCQ*) and *The Journal of Business and Technical Communication* (*JBTC*). The contributors to both journals tend to be established scholars (and graduate students) in the academy, as well as textbook authors. Many (such as Mike Markel and Saul Carliner) maintain consulting practices in addition to their academic duties, and are also frequent contributors to practitioner journals like *TC* and *Intercom*. I followed the same methodology as in the previous chapter, looking first at indexes of article titles and abstracts in order to determine the guiding metaphors at work in the articles, and then looking more closely at the articles themselves for detailed examples of specific metaphors. I ignored any items that were not feature articles—which, in these two journals, consisted mostly of book reviews. Again, my goal was not only to find those Humanist metaphors specifically at odds with the Positivist metaphor, but also to find the extent to which academics rely on the Positivist metaphor, as well.

Between 1996 and 2002, approximately 124 feature articles appeared in *TCQ*. They cover a greater variety of disciplines and subject matter than the practitioner journals, including environmental and visual rhetoric, women's studies, social implications of various technologies, international and multi-cultural issues, various aspects of technical communication education, and explorations of theoretical systems in the contexts of modern business practices. There is also a much greater range of rhetorical purpose within the academic texts. While the practitioner journals we examined in the previous chapter tend to focus almost exclusively on issues of application, the academic articles in *TCQ* tend toward analyses of abstract issues, but also range into the realm of application, as well; there are also numerous articles that address the specialized problems of educational practice and the needs of writing instructors, and others that explore particular issues related to writing different kinds of texts in particular settings, as well as case studies of writers, groups of writers, or particular professions. In short, while academic discourse is largely centered around abstract theoretical issues, there is a clearly marked subcategory of texts that do attempt to merge the theoretical with the more practical issues of application.

Surprisingly, approximately 60 (48.4%) of the articles in *TCQ* rely wholly or partly on the Positivist metaphor. For example, in "Selection of Technical Communication Concepts for Integration into an Accounting Information Systems Course: A WAC Case Study," (1997) Gelinas, Rama, and Skelton discuss the process of choosing bits of knowledge and skill sets from technical communication courses and moving them across the university curriculum to put them into practice in another

department—a process that one might expect to involve a dialogue or discourse across disciplines, but which here becomes something like an engine overhaul. Similarly, Emily A. Thrush and Necie Young's "Hither, Thither, and Yon: Process in Putting Courses on the Web" creates a physical space for the manual building, moving, and storing of ideas that are static and fixed. Using an engineering metaphor *par excellence*, Kelli Cargile Cook's "Writers and Their Maps: The Construction of a GAO Report on Sexual Harassment" focuses on the physical artifact of the text as a remnant of the designing and building process. Nearly half of the articles use these or other variations of the Positivist metaphor; typically they are, like the three articles above, analyses of specific kinds of practice or case studies of particular documents.

Only about 27 (21.8%) of the articles in *TCQ* are organized around Humanist metaphors. In many cases, the authors seem to have chosen the metaphors as part of a conscious and controlled frame for a particular argument. For example, in a three-part series of articles—"Technical Communication from 1850-1950: Where Have We Been?," "Technical Communication from 1950-1998: Where Are We Now?," and "Technical Communication in the 21st Century: Where Are We Going?"—Teresa Kynell, Katherine Staples, and Jimmie Killingsworth, respectively, use a simple but consistent journey metaphor to organize their study of trends and changes within the discipline of technical communication, highlighting issues of community relationships and human interaction. Other writers, like Patterson and Lee, choose politically charged language or simple metaphors of presence and action in order to frame communication issues as human conflict. In "Power, Language, and Professional Choices: A

Hermeneutic Approach to Teaching Technical Communication," Denise Tillery uses her title to set the stage for an argument about power relationships and writers' actions, casting workplace conflict as an issue of ethics, self-awareness, and interpersonal behavior and actions, rather than the mechanical interplay of finite forces.

And most commonly, academics use simple body metaphors in order to humanize their discussion of abstract issues; Bonita R. Selting in "Conversations with Technical Writing Teachers: Defining a Problem" (2002), and Jay Gordon in "*Techne* and Technical Communication: Toward a Dialogue" (2002), are just two examples among many that frame intellectual debate as face-to-face speech.

Finally, the remaining 37 (29.8%), of the articles in *TCQ* avoid using overt conceptual metaphors. Altogether devoid of agents or actions, these article titles give no hint of the organizing conceptual systems at work within. Donna Kienzler's "Ethics, Critical Thinking, and Professional Communication Pedagogy" is a representative example, relying on abstract nouns that register as neither Positivist or Humanist. Gregory A. Wickliff's "Geology, Photography, and Environmental Rhetoric in the American West of 1860-1890" and "Implications of Professional Writing Experiences of Academic Veterinary Scientists for Technical Writing Pedagogy" by Heidi M. Lott and Marilyn Barrett-O'Leary demonstrate a similar stylistic avoidance of metaphor. In some cases this can perhaps be explained by particularly abstract subject matter—as with Kienzler's treatment of ethical philosophy or Wickliff's historical look at the American West—that inspires the authors to attempt more neutral, objective word choice. Or it might be simply explained by greater linguistic self-awareness among academics.

Whatever the case, almost one-third of the academic texts in TCQ adopt stylistic features that conceal or eliminate overt metaphorical conceptual systems to a degree far greater than practitioner texts do.

The distribution of metaphors is strikingly similar in *JBTC* during the same 6-year time period. The journal published 137 feature articles; of those, 46 (33.6%) rely on Positivist metaphors. Charles Bazerman's "The Production of Knowledge and the Production of Human Meaning" discusses knowledge as a material object, manufactured in an abstract assembly line of mechanical systems. In "Who Owns My Work?: The State of Work for Hire for Academics in Technical Communication," Tyanna K. Herrington highlights writing as a commercial activity, treating knowledge as a commodity that exists independently of people and contexts. And Karl Smart and Matthew Whiting embrace the ideal of the clockwork text in "Using Customer Data to Drive Documentation Design Decisions," reducing the agency of the writer in favor of causal forces that govern the production of texts. Just like those in *TCQ*, the articles in *JBTC* that build on Positivist metaphors tend to be those that deal with issues of practical application or real-world case studies.

In contrast, only 24 (17.5%) of the articles in *JBTC* are based on overtly Humanist metaphors. Body metaphors are again the most common; Greg Wilson's "Conversations about Postmodernisms, Technical Communication, and Pedagogy" suggests the physical presence of speakers and hearers embodied in the text—even the abstract issue of postmodernism as a philosophical component of education is recast here as a language tic. Ann M. Blakeslee's "Activity, Context, Interaction, and Authority:

Learning to Write Scientific Papers *in situ*" highlights numerous metaphors of agency and presence, reinforcing the idea that texts are created by humans in contexts; the activity of writing is foregrounded at the expense of the scientific paper as an artifact or object. In "Writing as Embodied Practice: The Case of Engineering Standards" (2001), Christina Haas and Stephen Witte conceptualize professional writing as action incarnated, a physical instantiation of abstract specifications and standards. Though they occur in limited numbers, these articles that rely on the Humanist metaphors are much like those found in *TCQ*: the metaphors are used, seemingly consciously, in the service of a particular rhetorical goal or theoretical approach.

The largest group of articles in *JBTC* avoids metaphoric language, choosing instead an abstracted, nominalized style that sets up no clear conceptual framework for reading the text. These 67 (48.9%) articles, such as Frederic G. Gale's "Logic, Rhetoric, and Legal Writing," use abstract nouns to skirt conceptual metaphor. This is not to say that these articles avoid metaphoric language altogether; rather, they merely do not display a clear metaphoric framework from the outset. There is no clear reason for this unexpectedly high percentage, but it is not surprising that academic writers would be particularly aware of their own language use and prone to favor or avoid certain kinds of linguistic behaviors. This large-scale avoidance of overt conceptual metaphor signals, at least to some degree, an attempt toward linguistic objectivity, an awareness that active, metaphor-laden language highlights the exact nature of one's subjectivity.

Figure 3 below shows the breakdown of conceptual metaphor use in *TCQ* and *JBTC*. While there is some variation between the two journals, the strongest correlation

lies in the unexpectedly low frequency of dominantly Humanist metaphors. Figure 4 compares the use of conceptual metaphors in the academic journals examined in this chapter to their use in the practitioner journals examined in Chapter II.

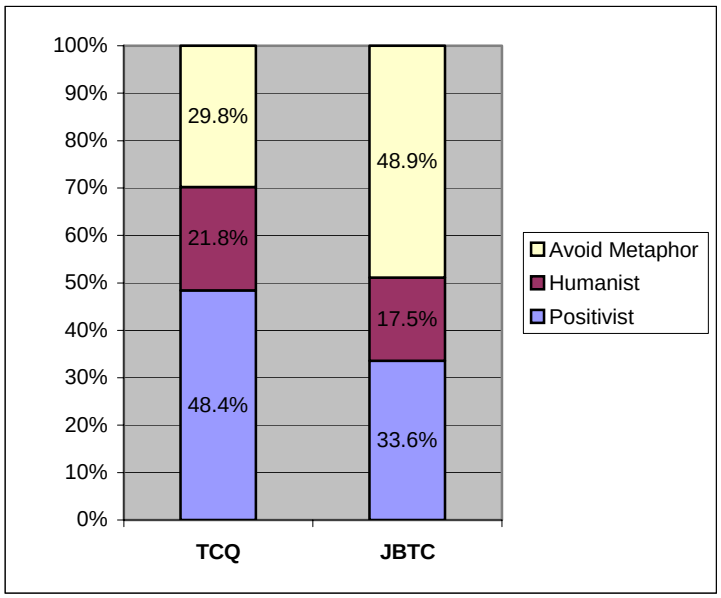

Figure 3. Comparison of Conceptual Metaphors in Academic Journals.

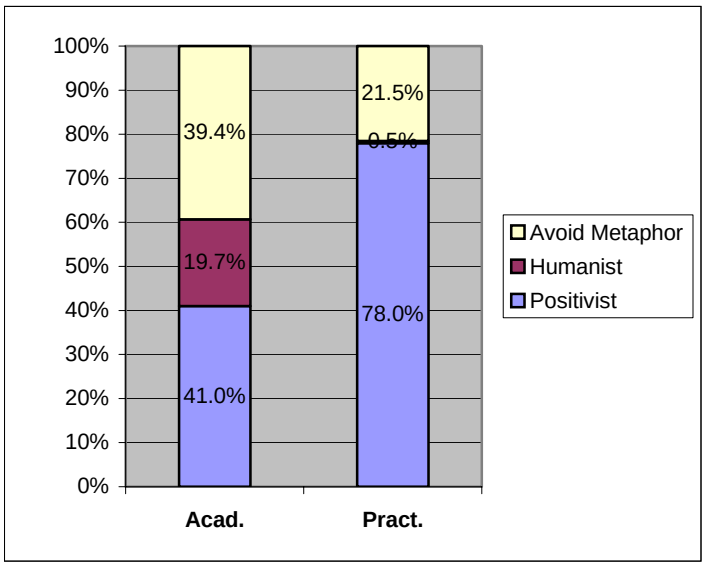

Figure 4. Conceptual Metaphor Use in Academic vs. Practitioner Journals.

A few conclusions immediately present themselves. First, the Positivist metaphors, while still prevalent in academic discourse, appear with only half the frequency with which they are found in practitioner discourse. Second, while only about one in five academic articles is based upon overtly Humanist metaphors, this small number is still vastly higher than the appearance of Humanist metaphors in practitioner discourse. What remains to be explained is the much greater variety of conceptual systems among academics, and the persistence of the Positivist metaphors among academic authors who so clearly do not value or share the assumptions inherent in those metaphors.

Conflicting Metaphors: Tensions in Academic Discourse

One of the primary differences between academic and practitioner texts—and a difference that accounts for the relatively high percentage of Positivist metaphors found in academic journals—is a much higher degree of tension in the conceptual systems that appear in individual academic texts; while practitioners tend to adhere closely to Positivist metaphors, academics are much more likely to demonstrate a conceptual ambivalence that includes both Positivist and Humanist metaphors. For example, in the previous chapter of this dissertation, I discussed Johndan Johnson-Eilola's *TCQ* article "Relocating the Value of Work," and showed that the text participates in both the Positivist and Humanist conceptual systems in ways that threaten to undermine its ability to cohere with Johnson-Eilola's political and social agenda. Similar tensions (though on a much smaller scale) occur in most of the academic texts discussed in this chapter, as well; as I noted above, both Leininger and Tebeaux frame their arguments in particularly practitioner-like terms before espousing theoretical views that begin to contest or belie their original Positivist values and assumptions. This kind of conceptual tension among academics merits further discussion, because its frequency begins to reveal that the practitioner/academic rift may actually have its source entirely in the ways that academics understand and frame technical communication.

An excellent series of examples can be found in the Winter 1999 issue of *TCQ*, which was a special edition devoted to the World Wide Web and distance learning. All of the articles betray some level of conceptual ambivalence, and a few of the them are clear illustrations of the extreme contradictions which academics are capable of

maintaining. In “The Web, the Millennium, and the Digital Evolution of Distance Education,” David C. Leonard begins the series of articles by articulating the differences between traditional education and web-based education, arguing that universities must reinvent themselves in order to accommodate new kinds of students, new technologies, and changes in society that are no longer adequately served by the traditional kinds of schooling. In making his case, however, he ranges from one conceptual extreme to another, using metaphors that assume both Positivist and Humanist values, often in the same sentence. His opening paragraph is a microcosm of what appears throughout the article:

> As the millennium approaches, the World Wide Web has become a ubiquitous electronic medium of communication. It is also becoming a Universal Electronic Campus, a global “academical village” where thoughts, ideas, and processes are shared, and where people learn and produce in bits, not in atoms. However, a significant number of university administrators and faculty persist in focusing their vision on the physical campus, on bricks and mortar. They remain fixed in the world of atoms and nearly oblivious to the new virtual learning world being built within their midst. (p. 9)

The metaphors are not complicated, but they do stand in sharp contrast. Leonard encompasses the complex system of online interaction by equating it with a village community—a commonly-used metaphor among academics for any kind of social community—in which ideas are shared. The idea of a village implies close interpersonal

interaction, a place of shared goals and values. But in Leonard's village, learning and producing are closely linked; this is a community that develops only by making, and the primary unit of production is the "bit," a digitized synonym for the more general "knowledge" or "information" that practitioners are so fond of consuming. Leonard also invokes university leaders as physical bodies, "focusing their vision" metaphorically on problems and issues that he believes are irrelevant to their goals in a changing society; but he simultaneously berates them for their physicality, advocating movement into the "virtual learning world," a place which manages to be separate from the "world of atoms" but also engineered into existence among the bodies of the educational old guard. It is a confused jumble of metaphors that pits human interaction against mechanized progress and suggests that the ethical ideal of educational equality can coexist with the view that knowledge is a resource to be produced and consumed.

These tensions persist throughout the article. Leonard criticizes the "industrial age model of education" for its treatment of education as a form of factory production in which faculty overseers ensure that student work meets fixed quotas and criteria. He laments that, as part of this model,

> course instruction was often limited to teaching the basic theories and practices of particular disciplines, in which conceptual knowledge predominated over putting ideas into action. The predominant method of knowledge transfer was the instructor using chalk and chalkboard, reciting ideas taken down by students using pen or pencil… (p. 10)

Standing in contrast to this knowledge-mill model of education is the university of the digital age, where “colleges focus their expenditures on using technology as integral to the process of learning and sharing information in their virtual ‘academical village’ and within all schools and academic disciplines” (p. 11). From his lengthy critique, one might assume that Leonard has no love for the conduit model of communication; he reasserts that humanized interaction among various fields is the ethical ideal for education, and shows that, for most “knowledge workers” in the modern business environment, “work is a result of a collaborative effort of a team of knowledge workers who use technology to produce processes and programs” (p. 11). In effect, he suggests that the workplace and the academy function based on the same humanized values.

However, Leonard almost immediately undercuts this idyllic view when he explains the importance of technology in the digital age and the inadequacy of traditional university models. Students must be taught in ways that prepare them for the modern workplace, which involves “working with bits” (p. 11). Reorganizing education around technology is of vital importance, he argues, because “[m]ost companies in the private sector have already curtailed the growth of their physical infrastructure and the organization that supports it, and have integrated technology to transform the way they do business” (p. 11). Leonard’s view of the modern workplace becomes significantly less attractive as we sort out the metaphoric euphemisms: the physical infrastructure and the organization that supports it are, of course, working people, and the primary reason for curtailing their growth, from the corporate perspective, is to decrease costs and increase revenue. In the space of a few sentences, Leonard has placed his humanized

ideal of the intellectual village in the service of corporate capitalism—a seemingly odd turn considering his earlier denigration of education in the industrial age. He concludes his case for the importance of training technologically savvy students by suggesting that

> higher education… has not been able to produce these types of workers in sufficient numbers to meet the needs of high-tech companies. In such a talent-starved environment, the main corporate goal is to provide the knowledge worker with the best networked technology to promote better sharing of knowledge and increased dialog in which new ideas are generated and innovations are brought to market" (p. 12).

Despite his claimed dislike for the ways in which universities have become knowledge mills, Leonard still implies that workers are created in just such a mechanized process, stamped out like sheets of metal to be molded by their corporate masters. Though hints of Humanist metaphors remain in his mention of interactive dialogue, almost all bodies and agency disappear from his conceptual system, replaced by machines and markets. Ideas exist to be sold, and humans exist to facilitate their making and selling.

Leonard's article ends on a note that is either grim or hopeful (depending on one's perspective), and that also articulates a clear reason for some of the conceptual schizophrenia found in his argument.

> Our future depends on our willingness to change as technology changes… Those educational institutions unwilling or unable to transform themselves may not survive the next wave of change brought about by further advancements in communication technologies. In

> technical communication education, we have every reason to undergo this transformation, for our discipline is inextricably intertwined with the knowledge management revolution. Our future is tied directly to the electronic dissemination and sharing of knowledge via the Internet and its successors. (p. 19)

Whatever his political and ethical sympathies, Leonard is unable to articulate a distinction between technical communication education and corporate practice. If technical communication and knowledge management are indeed synonymous, then the goals of the educator and the goals of the CEO are parallel; a system of humanized ethical values that idealize equity and individual agency cannot long withstand such company. No matter how thoroughly Leonard grounds his argument in Humanist metaphors, his definition of technical communication ensures that the tendrils of Positivist values must inevitably color everything he says.

Leonard's article displays one man's conceptual ambivalence; it would hardly be worth mentioning if it were not emblematic of trends that permeate academic discourse. In the same issue of *TCQ*, the other authors discussing distance education demonstrate similar conceptual tics:

- In "Pedagogy, Architecture, and the Virtual Classroom," David Gillette attempts to reconcile the needs of being a teacher with the lack of physical proximity in distance courses, and suggests that instructors must become designers building virtual spaces for interaction; his argument relies on body metaphors that imply human interaction and collaboration, but at the same time requires him to treat

the virtual space as a receptacle for objective information that can be assembled in various ways to produce predictable results among students.

- In “Technical Communication on the Web: A Profile of Learners and Learning Environments,” Suzanne P. Schneider and Clark G. Germann espouse “learner-centered” models of pedagogy that value the integration of education with daily life, self-directed study, and student empowerment in the education system (p. 44). Nevertheless, they, too, must contend with the need to create virtual spaces and somehow “deliver” (p. 37) their course with a variety of technologies.
- In “Hither, Thither, and Yon: Process in Putting Courses on the Web” (cited above as an example of Positivist discourse in an academic journal), Thrush and Young reiterate the modern academic goal of “enhancing” existing courses by incorporating technology and “building Web components deliverable on the Internet” (p. 49). Though they nod toward the goal of encouraging students “to be proactive, independent learners and researchers” (p. 49) and they repeatedly rely on body metaphors when talking about various forms of synchronous and asynchronous communication activities, their discourse inevitably devolves into discussions of hardware and tools appropriate for this kind of informational construction project.
- In “Worlds Within Which We Teach: Issues for Designing World Wide Web Course Material,” Mary F. O’Sullivan discusses the relative merits of “creating online instructional sites by hand” versus “using course-in-a-box software” to generate class web pages (p. 70).

All begin with at least the trappings of Humanist metaphors that assume a certain set of political and social goals, but all eventually arrive at some variation on Positivist methodology to pursue those goals.

This ambivalence is repeated over and over in academic discourse. As I pointed out in my analysis above, those academic articles most likely to rely on overtly Positivist metaphors are the articles concerned with application of theory, or studying individual instances of practice. This implies, if nothing else, that academic discourse still does not have a vocabulary capable of sustaining its Humanist values beyond their most abstract metaphoric articulations. The language of practice inevitably bends those metaphors in old directions, subsuming Humanist goals under Positivist conceptual systems.

As I stated at the beginning of this chapter, I began this research project with fairly simplistic expectations; based on my own casual reading of journal articles, I was expecting to find practitioners using one set of conceptual metaphors, and academics using another. The reality, as demonstrated by the analyses in this chapter, is more complex. Practitioners do, indeed, largely adhere to the Positivist metaphors of objects and machines. Academics avoid metaphor more earnestly, but are also more ambivalent in their adherence to Positivist or Humanist metaphors; these two conceptual systems, which should in many ways preclude each other, co-exist uneasily in academic discourse. It would seem that the source of tension lies, not between practitioners and academics, but among academics themselves.

This has serious implications for those of us who teach technical communication. If we, like Leonard, equate our educational task with the needs of corporate capitalism,

we embrace a conceptual system that has little room for Humanist political and social goals. Many of the articles examined in this chapter have concerned themselves with ways to develop Humanist values in the classroom, but have become tangled in language that undercuts those values. It seems necessary to explore the ways in which this conceptual muddle extends beyond professional discourse and into the technical communication classroom. In the next chapter, I will examine a number of the most popular technical communication textbooks and demonstrate how they navigate the conceptual maze that permeates our profession.

CHAPTER IV

TEXTBOOKS, PEDAGOGY, AND MIXED METAPHORS

I began this investigation into the divisions between academic and practitioner discourse in technical communication assuming that I would find some very basic differences in the conceptual systems favored by each group. As the previous chapters demonstrate, however, the division between the groups is much more complicated; while practitioners do indeed tend toward a monolithic and closely connected group of Positivist metaphors that objectify the agents and actions of communication, academics use language that participates in both Positivist and Humanist metaphors, adhering to multiple and generally conflicting conceptual systems simultaneously, often in the space of the same article. To some degree, such slips in metaphor seem unavoidable, because of the ubiquity of the conduit metaphor in English (which perpetuates the treatment of language as mechanical transmission) and the practical necessities of producing technical communication in the workplace (which lead corporate entities to perceive texts as commodities and property); it becomes very difficult for anyone to talk about the practical issues of writing without adopting the language of machine and marketplace. But surprisingly, this conceptual ambivalence seems to be largely unconscious, even among those of us who deal in the issues of communication for a living, and this unconsidered use of language represents more than merely an abstract oddity or intellectual conundrum—it has real consequences in any prescriptive discussion of ethical or social responsibility among technical communicators. If we wish to talk about

the ethics of visual display, or the conflicting allegiances to both corporate employers and reader/clients that must be balanced by writers, or the politics of workplace communication, then it is imperative that we not unconsciously acquiesce to language that treats people as complex cogs in a grand social machine and communication as merely a transaction of goods and services. When we do no consider the implications of those metaphors, certain attitudes and beliefs about readers, writers, and texts become almost inevitable, and options for considering or understanding complex communication issues become limited by the language we use.

In this chapter, I discuss some of the less abstract consequences of the conceptual ambivalence that plagues technical communicators. During the semesters that I researched the use of conceptual metaphor in academic and practitioner discourse, I have also been teaching general education technical communication courses, and have become increasingly aware of the role that metaphor plays in how I plan class projects and discussion, and how my students understand and learn technical communication theory and practice. Exploring the resulting class dynamic and attitudes about technical communication would be a dissertation-length study unto itself; on a more limited scale, however, I think it is important to discuss the function of metaphor in technical communication textbooks and the ways that these bleed into the course in general. For the past few months, I have also been on a committee tasked with selecting a new standard textbook adoption for our department's sophomore-level technical communication course, and our grand foray through a dozen textbooks has given me incentive to consider their use of conceptual metaphor. These texts are, for many college

students, their first and only formal interaction with aspects of communication that will be important to them long after the class is over; for many teachers—particularly inexperienced graduate instructors with no background in technical communication (like those at my university who teach this class to non-English majors from the general university population)—the textbook might be the only theory that informs their approach to the subject. The technical communication course seems a likely vantage from which to address some of the conceptual practices that have perpetuated the division between practitioners and academics, and textbooks likely avenues for understanding both potential participation in and resistance of these conceptual practices.

I begin this chapter by looking at Mike Markel's *Technical Communication*, one of the most widely-used (and widely-imitated) textbooks for introductory writing courses in this discipline; in particular, I look at his definition of technical communication, his discussions of ethical considerations and audience analysis, and his guides for stylistic revision and formal report writing. These five chapters, I argue, demonstrate profound conceptual tensions deeply rooted throughout the text and exemplify a number of constraints or limitations on how students learn to think about and do technical writing. I then briefly examine two other textbooks in order to show how they repeat or attempt to avoid similar conceptual tensions. The chapter concludes with a discussion of the implications of these texts for those of us who teach technical communication and do not wish to perpetuate the conceptual divisions that permeate our field.

Conceptual Metaphors in *Technical Communication*, 7th Edition

I chose Markel's text because his work has, in the last two editions, been consistently trend-setting to the point that other authors and publishers have been forced to emulate him.[1] In the sixth edition, he was able to demand that the publishers follow his specifications for document design and color use throughout, leading to a text that (unlike many of the other available books) exemplified the principles it discussed; his was also the first technical communication text to have an extensive online companion website with exercises and case studies being continually updated. The book remained, in many ways, dynamic. Another feature that makes this book worth noting is Markel's decidedly humanist sympathies; in the introduction to the text, he lists as major features "a focus on rhetorical concerns, and in-depth treatment of ethics in technical communication" (p. *v*). His other academic publications have been largely concerned with the ethical considerations and social responsibilities that technical communicators should consider,[2] making him a strong representative for the academic agenda in the classroom. For these reasons, and because many other textbook publishers have begun to adapt their texts to address similar issues (making this book in many ways representative of the field), Markel's text is an excellent example to consider here.

Definition of Technical Communication. In the upper right corner of the first page of chapter one, Markel opens his textbook with a list of statistics clearly intended to establish the context for the chapter; citing a number of studies, he demonstrates that writing and communication skills are of central importance to major companies in the business world. The list is short and simple, and quite elegantly makes the case that

students should be aware that communication is the most important thing they will do after college. The main body of the chapter text then begins by defining technical communication; unlike many textbook authors, though, Markel does not phrase his definition as a concrete, single sentence that students can point to. (In fact, on my first reading quiz of the semester, many students usually miss that definition question.) Instead, he offers a rough definition and then uses the entire first chapter to gradually build up a picture of technical communication based upon the people who write it, the purposes to which it is put, and the features that make it different from other kinds of purposeful writing.

There is tension from the beginning, however. The opening two paragraphs set the stage for the chapter:

> When you make technical documents, you are creating, designing, and transmitting technical information so that people can understand it easily and use it safely, effectively, and efficiently.
>
> Much of what you read every day—textbooks, phone books, procedures manuals at the office, environmental impact statements, journal articles, Web sites, the owner's manual for your car—is technical communication. The words and graphics in these documents are meant to help an audience understand a subject or carry out a task. (p. 4)

Though the subject is ostensibly technical communication in general and the purpose of the chapter is an introduction to theory, Markel chooses to open by talking about making documents, or the act of producing a physical artifact. This is perhaps to be expected in a

text that will be largely about writing, but consider his other options: technical communication as social action (Miller), or as field of practice among disciplines (Killingsworth and Gilbertson), or as an act of "accommodating technology to the user" (Dobrin). The opening of a book sets the tone for the book, and the implications of Markel's choice lean more toward text-as-object than text-as-purpose; technical communication is a litany of kinds of documents, rather than an activity involving writers and readers in moments beyond the limitations of the textual artifact. Moreover, notice that, in his opening sentence, the goal of a document is to transmit information so that it can be used; this very first line of the chapter establishes information as only tenuously dependent upon people or contexts. It is not until the end of the second paragraph that the focus moves beyond the physicality of the text to the rhetorical consideration of writing as a purposeful act: readers have needs, and texts are attempts to address those needs. However, this brief focus on readers shifts quickly away again, as the next several sections ("Who Produces Technical Communication?," "The Role of Technical Communication in Business and Industry," and "Technical Communication and Your Career") all discuss little besides documents that one might produce in the workplace. Markel caps his argument about the importance of writing with the summation that "[t]he facts of corporate life today are simple: if you cannot communicate well, you are less valuable; if you can, you are more valuable" (p. 6). While achieving a status of maximum corporate value may not be a bad thing in and of itself, this is not the justification that we might have expected for pursuing the study of technical communication—at least not from Markel.

Nor is it, as seems clear from the text, the justification that Markel intends. In the following section addressing the "Characteristics of Technical Communication," the focus changes suddenly to considerations of context and purpose. He argues that technical communication can be identified by its features; it

- addresses particular readers,
- helps readers solve problems,
- reflects an organization's goals and culture,
- is produced collaboratively,
- uses design to increase readability,
- consists of words or graphics or both, and
- is produced using high-tech tools. (p. 6 ff.)

Generally speaking, these characteristics (all except the last) have little to do with documents as objects or artifacts. They articulate the necessity of considering audience and purpose and context, directing students to think of writing as an interactive undertaking among numerous people. However, even in these sections about rhetoric Markel slips back to discussing everything in terms of physical documents. In the section about audience, for example, he suggests that a primary consideration is that a document be structured so that its readers "can easily locate and understand the information they seek" (p. 6). This is, of course, a strategy for showing students that documents are different and must be accommodated to their purposes. However, by having the entire chapter of communication theory grounded conceptually in terms of a finite product document, Markel limits his discussion of rhetoric; what might have been

about choices is instead simply about things. It is a pattern that repeats throughout the chapter. In his discussion of collaboration, for example, Markel discusses the importance of interpersonal skills, suggesting that

> [c]ollaboration is common in technical communication because no one person has all the information, skills, or time to create a large document… You have to listen to people with other views and from other business and ethnic cultures, express yourself clearly and diplomatically, and compromise. (p. 8)

But notice that you do not interact with other people to learn, or persuade, or effect change in other humans; you collaborate to create better textual artifacts.

What, then, makes a better textual artifact? As we saw in the previous chapter, Humanist metaphors tend to imbue texts with agency, allowing documents to stand in for the voices and bodies of their writers. In Markel's discussion of "measures of excellence" for technical communication, we would, in fact, expect to find exactly these agency metaphors, particularly considering his scholarly interest in ethical issues. His measures of excellence, however, move generally in a different direction. He suggests that there are eight: Honesty, Clarity, Accuracy, Comprehensiveness, Accessibility, Conciseness, Professional Appearance, and Correctness (p. 10 ff). His explanation of honesty is expectedly ethical in nature; texts can lie, and lies have consequences in terms of ethos and legal action. He suggests that being honest is "the right thing to do. Technical communication is about helping people understand how to make wise choices as they use the information available in a high-tech culture" (p. 10). While he still

objectifies information as an independent entity, technical communication is here articulated as a rhetorical undertaking, rather than a particular document.

The rest of the measures, however, return to a focus on physical texts and Positivist treatments of language. Clarity, accuracy, comprehensiveness, and conciseness, in this context, are not Humanist concerns. While discussing clarity, for example, Markel says that "[y]our goal is to produce a document that conveys a single meaning the reader can understand easily" (p. 11); for conciseness, he argues that "[y]our job is figure out how to convey a lot of information economically" (p. 12). These are considerations of efficient transmission, not engagement with a reader. Similarly, accessibility and professional appearance are concerned almost entirely with the physical structure of the document; only briefly under professional appearance and correctness does Markel consider issues of ethos, warning that "violating the rules of correctness hurts your writing because it makes you look unprofessional… If readers become skeptical about your professionalism, they will be less likely to accept your conclusion or follow your recommendations" (p. 13). Even these mentions of ethos, however, curiously abstract the writer from decision-making and engagement with readers. The writer is merely an effective or ineffective conduit; the reader is all-powerful but aloof, in need of correct information and transparent delivery methods. Neither is a participant in the shared creation of ideas or meaning.

Ethical Considerations. In the second chapter of the textbook, Markel turns to ethical issues—by definition, the most Humanist of concerns. He outlines a number of instances in which technical communicators might have divided loyalties between the

good of the company and the good of clients or users, and suggests that a methodology for thinking about ethical dilemmas can be found in the work of ethicist Manuel G. Velasquez (1998), who explains four categories of standards: rights (basic human needs), justice (fair distribution of costs and benefits among a group), utility (effects of an action on the public positively or negatively), and care (consideration owed to other humans) (Markel, p. 17). These standards, though often conflicting, govern the range of considerations that a technical communication should address when faced with ethically problematic situations.

Interestingly, Markel merely outlines these categories; he does not discuss specific instances, or talk about applying them practically. Instead, he immediately switches to a discussion of legal and professional obligations as a means of codifying the considerations a writer must make. He begins with legal obligations related to corporate rights (copyright and trademark law), and then those that can relate to customers as well as corporations (contract and liability law). By making this move, he changes the immediate focus of the chapter from the necessity for making difficult choices to a list of requirements about which writers have little (or no) choice; one must, for example, protect the company's trademark, refrain from making express warrantees that exceed a product's merits or capabilities, and inform readers about safety issues associated with using a product or performing an action. Though such a move is not, strictly speaking, an issue of conceptual metaphor, it nevertheless seems a result of thinking about texts in Positivist ways. Rather than talk about the thornier aspects of ethics, Markel begins with a codification of required actions. Matters of law are clearly important to discuss in a

professional writing course, but they appear in this chapter to make ethical problems tidier, simpler to formulate and easier to categorize.

This codification of ethical behavior continues in Markel's subsequent section about "Principles for Ethical Communication." The end of the chapter lists, in a sort of seven commandments for technical writers, a series of desirable behaviors. He suggests that writers should:

- abide by relevant laws,
- abide by the appropriate corporate or professional code of conduct,
- tell the truth,
- [not] mislead readers,
- be clear,
- avoid discriminatory language, and
- acknowledge assistance from others. (pp. 26-27)

These two pages abbreviate, for Markel at least, the sum total of Western ethics, and become a checklist for behavior. If you tick off each one, then your behavior is ethical—or so the chapter seems to say. And while Markel would no doubt object that my reading of this categorization is overly simplistic (indeed, he acknowledges the nebulousness of most ethical dilemmas early in the chapter), his presentation of ethics almost entirely avoids the rhetorical nature of communication. His injunctions about truth and misleading are both ultimately about clear and efficient transmission. And what is the reason for thinking about ethical behavior in the first place? Because "[a]s an employee, you are obligated to further your employers legitimate aims and to refrain from any

activities that run counter to them" (p. 26). A chapter that might have been about rhetoric or social responsibility instead offers only service to the corporate bottom line as the ethical motivation for the writer. This unexpected ethical focus is reinforced by the case study that ends the chapter—less a dilemma about rhetoric or persuasion than a scenario about the possible ways a company might lose money by failing to cater to the attitudes of Middle Eastern clients, who are assumed to have unwavering prejudices against both women and Jews (pp. 30-31).

This section on ethics is not really an example of conceptual metaphor in action; it does, however, seem to illustrate the consequences of the kinds of metaphors seen in the first chapter of the textbook. If discussions of technical communication must focus only on the textual artifact, and if the processes of writing and communicating are mechanical undertakings concerned with efficiency and profit, then a corresponding system of ethics is going to be heavily skewed away from Humanist values and toward Positivist ones.

Audience Analysis. In Chapter 5 of the text, Markel returns again to rhetorical considerations with his discussion of audience analysis, but with a focus that is lacking in previous chapters. "The content and form of every technical document," he begins, "are determined by the writing situation: your audience and your purpose. Understanding the writing situation helps you devise a strategy to meet your readers' needs—and your own" (p. 74). He shows that technical writers are often faced with the tricky problem of having multiple (primary and secondary) audiences in a given situation, and that different kinds of readers (e.g., technicians vs. managers) bring

different levels of expertise and different interests or concerns that influence how they interact with a text (p. 75). He concludes with an overview of multicultural issues in technical communication and the many difficulties inherent in bridging international differences (p. 87). Most importantly, this is the first chapter in the book that talks almost solely about people rather than kinds of documents.

Despite its clear purpose as a rhetorical primer, there are interesting conceptual slippages throughout. In describing basic categories of readers, for example, Markel outlines four kinds of people—experts, technicians, managers, and general readers—who ultimately represent a number of rhetorical purposes that one might be pursuing (defining, instructing, proposing, reporting). However, Markel never actually mentions the idea of purposes. Instead, he suggests that you should "try to classify your readers according to their knowledge of your subject… These categories are only generalizations, but most people fit into one or perhaps two of them" (p. 75). His listing proceeds with a discussion of the characteristics, ticking off features of different kinds of readers. The expert, for example,

> is a highly trained individual with an extensive theoretical and practical understanding of the subject… Because experts are curious about their subject and understand its theory, they usually have no trouble with technical concepts, formulas, graphics, and vocabulary. Therefore, when you write for experts, you can get right to the details of the technical subject without spending time on the basics. In addition, most experts are

> comfortable with long sentences, if the sentences are well constructed and no longer than necessary. (p. 76)

Similarly, technicians "are very interested in their subject, but they know less about theory… they need schematic diagrams, parts lists, and step-by-step instructions. Most technicians prefer short or medium-length sentences and common vocabulary" (p. 76). These listings guide students through an Aristotelian categorization of readers by genus and species, rather than focusing on the purposes of communicating with a variety of readers in the first place. The result is a litany of superficial textual features—sentence length, graphics, vocabulary, etc.—that have some control over a reader's understanding. These are clearly important rhetorical considerations, but the overall impression they suggest is still one of an engineered text with modular components and predictable results; despite the fact this section is specifically about people and the reasons they read, the ticking off of features removes most of the reader's agency, turning the communication process into a series of forces at work on people.

The remainder of the chapter does more of the same. The middle section addresses the specific characteristics of individual readers, moving from the broad categories of the first section to much finer detail. It outlines a number of questions to consider when thinking about reader background and characteristics, attitudes and expectations, and purpose and environment for using a document; it talks about values, experience, and rhetorical approaches to meeting the needs of audiences. Markel offers examples and suggestions for how each reader characteristic might be accommodated. While still an Aristotelian classification effort, this listing of attributes is far less

prescriptive; it is clearly billed as a guide for thinking about potential problems that may arise in communication. However, in a book of nearly 700 pages, this outline of rhetorical engagement with a particular reader is approximately four pages long.

Moreover, the following section on multicultural communication amounts to a list of several "variables" that affect intercultural communication—political, social, religious, linguistic, and so on. Not only does this listing minimize the complexities of cultural difference, but the mathematical language employed throughout suggests an intellectual puzzle, or a sense of detachment from the issues being considered. For example, Markel warns of several issues to keep in mind when he discusses cultural variables that lie "beneath the surface:"

> Each variable represents a spectrum of attitudes… The six variables do not line up in a clear pattern… An organization's cultural attitudes are fluid, not static. (p. 90).

Despite the fact that he is actively attempting to warn students that cultural variables are a messy, unpredictable jumble, his choice of mathematical language here works against that warning. That same ambivalence is manifested in the way this section tends to focus on international communication (business in the U.S. vs. business in Japan, for example), without much effort to address cultural issues within a single country such as U.S. writers might encounter. There is a sense that audiences in other countries are quite different, but it is a difference that can be "figured out" or correctly puzzled together correctly with enough information.

Finally, after more than 20 pages listing reader characteristics, the chapter concludes with an injunction to determine your purpose in writing—the first actual mention of purpose in a chapter about rhetoric. Markel lists a series of verbs ("communicating verbs" and "convincing verbs") that exemplify different purposes, but the impression given is that the communicating verbs (describe, explain, inform, summarize) are more objective, suitable for objective presentation of pure information, while the convincing verbs have (or can have) some sort of sway over readers. Consider this curious passage:

> Sometimes your real purpose differs from your expressed purpose. For instance, if your real purpose is to persuade your readers to lease a new computer system rather than purchase it, you might phrase the purpose this way: *to explain the advantages of leasing over purchasing*. As mentioned earlier in the chapter, many readers don't want to be *persuaded* but are willing to learn new facts or ideas. (p. 97)

What this passage seems to say (in light of the verb list preceding it) is that convincing verbs (persuading) should be cloaked as more innocuous communicating verbs (explaining) when doing so leads to a greater likelihood of "success" (i.e., getting the recalcitrant reader to do what you want). This is a blatantly manipulative and mechanistic view of rhetoric: pushing buttons to achieve desired effects. It runs counter to Markel's ethical values expressed in previous chapters, and the social constructionist theories that inform his explanations throughout this chapter. The section's opening question—"When your readers have finished reading what you have written, what do

you want them to *know* or *believe*?" (p. 96)—takes on entirely different overtones when read in this light.

Stylistics. In Chapter 11, "Drafting and Revising Effective Sentences," Markel tackles the subject of style. As I mentioned earlier in this dissertation, the study of style is almost by definition a Positivist undertaking, typically positing a mechanics of language that encourages dismantling into component parts, studying in pieces, and reassembling in new configurations for various effects. It is quite difficult—perhaps impossible—to talk about style without treating language as a sort of great objective machine. This difficulty can be mitigated when attention is paid to the highly contextual and dynamic nature of stylistic tropes; however, such attention requires a great deal of time and effort that are typically beyond the constraints placed upon textbook authors. Markel is no exception. The two main sections of his chapter—"Structuring Effective Sentences" and "Choosing the Right Words and Phrases"—are exercises in Positivist language study: the engineering of language constructs for effective transmission. He opens by telling students that "Good technical communication consists of clear, correct, and graceful sentences that convey information without calling attention to themselves" (p. 238), and proceeds to outline a checklist of do's and don'ts for good writing: using lists, putting new information at the ends of sentences, using parallel structure, and so on. There is little discussion of contextual appropriateness or reasoning for most of these rules; such nuances are typically covered by variations on Markel's repeated pronouncement that each of these practices "makes a sentence easier for the reader to follow" (p. 245).

There are moments in the chapter when Markel takes on (or makes gestures toward) issues with greater significance. Buried between “Avoid Clichés” and “Be Concise,” Markel suggests that students should “Avoid Euphemisms” (p. 253), a stylistic consideration that has less to do with the mechanics of grammar than with establishing a certain kind of relationship with the reader. But this moment of ethical application consists of a brief list of sample euphemisms and an explanation that these tend to be ways of talking about things that make us uncomfortable, such as firing people. He concludes by telling students, “Don’t use language to cloud reality. It’s an ethical issue” (p. 254). However, this ethical issue is dealt with in about six lines of text, surrounded by discussions of clarity and efficiency. A moment to talk seriously about moral choices in language—a real problem in business or workplace communication in general—is lost amid a general treatment of communication as objective process.

Formal Reports. Thus far, I have discussed chapters of Markel’s text that focus on broad, theoretical issues. Chapter 19 on formal report writing is a representative example of the textbook’s move to application and Markel’s attempts to show students how to put into the practice the theory he has discussed. More so than the other four chapters I have discussed, this one pays more heed to the rhetorical issues in the writing of formal documents. For example, Markel discusses *bias* at some length when talking about comparing recommendation options, cautioning students that choosing evaluative criteria and deciding values for those criteria run the risk of being overly subjective (p. 493). Similarly, while carefully outlining the expected format of a formal report, Markel also periodically reminds students that the format can be flexible according to audience

and purpose—non-traditional sections can be added or issues can be presented in non-traditional ways (p. 502). He does not advocate slavish adherence to a particular model. It is interesting to note that in Markel's attempts to show the flexibility of the format, his language becomes slightly more humanist than we have seen in other chapters. He talks about a feasibility report as "an argument that answers three kinds of questions," ascribing agency and voice to the document (p. 490); this metaphor of voice continues as each of the sections of a report is presented as a question and its writing as a sort of dialogic engagement with the question (p. 495 ff.). At moments, Markel even discusses the progression of the report as a movement or journey (as opposed to a mathematical progression), implying the presence of bodies engaged in activity (e.g., p. 496).

But these humanist moments are balanced by the positivist conceptual systems permeating the chapter. The final step in a recommendation report, for example, is to "formulate recommendations based on conclusions" (p. 490). While the notion of formulating textual content is only passingly mathematical, Markel takes the metaphor much further, telling students that "[i]n most cases, if you have carefully formulated the questions you need to answer, carried out appropriate research, and drawn valid conclusions, your recommendation will flow directly and inevitably from those conclusions" (p. 490). This report sounds so easy, so methodical, almost clockwork in its natural progression from planning to production. Markel acknowledges that sometimes reports will not be so easy—sometimes there are ethical considerations, sometimes changes in your company's priorities or circumstances, etc. In an odd moment in the text, he gives students a more "difficult" scenario:

> What should you do if you conclude that Plan A is best, but management favors Plan B and has no intention of implementing Plan A. Should you just tell them what they want to hear by recommending Plan B, adjusting your results and conclusion to lead to this recommendation? In most instances, the answer is simple. Recommending Plan B would be unethical, because it would entail lying or misleading. However, an appropriate course of action might be to recommend each plan equally… This recommendation would give you the opportunity to make the case for Plan A, while still making it easy for management to choose Plan B if they remain unconvinced of the superiority of Plan A. (p. 490)

In the act of acknowledging that formulating recommendations is not always a mathematical exercise, Markel instead implies that ethical considerations are. In this example, the assumptions underlying the statement are somewhat troubling—it is important not to take an unfavorable position that management may not like, and the act of persuasion should only be attempted when you can cover your ass, rhetorically speaking. This mathematical approach to making recommendations seems a natural offshoot of a conceptual system that understands the writer's goal as the creation of some sort of monetary value; it is certainly not a scenario that encourages or reinforces social advocacy and responsibility as the writer's primary end.

In another Positivist moment, Markel's warnings about bias come hand-in-hand with a recommendation to use a decision matrix to ensure the methodical outlining of options and criteria. Though he says that "[e]valuating options according to criteria is

always subjective" (p. 493), the implication of the entire section is that methodicality removes subjectivity. The example provided in the text is a comparison of photocopiers, with each model receiving points for several different criteria (pages per minute, ability to duplex, and so on). It's all very tidy and mathematical (the Ricoh copier wins with a total of 33 points), but both the example and the section avoid discussing how to study or tally less tidy options and criteria—e.g., a recommendation might have to consider the ramifications of doing business with a company that engages in questionable ethical practices, or a report on cost-saving measures might require a discussion of layoffs. These are issues that do not easily yield to quantification. And while real world ethical issues (particularly of the sort that students will be facing as relatively new employees) are not always so big as how to talk about firing someone, they are often bigger than the number of pages per minute a copier can produce.

While Markel repeatedly acknowledges the context-dependent nature of writing, the entire chapter on formal reports ultimately becomes a formula (each step following naturally from the step preceding it) for moving from the initial decision to write a report to the final recommendation. The samples and scenarios presented in the chapter avoid difficult problems or sticky ethical dilemmas in favor of a smooth, self-contained, easily repeatable process for producing reports. Writing becomes something of a rote exercise, plugging in content in the appropriate section of the report, with all of the work happening in the problem-formulation stage, before the writing begins.

This has been a very quick look through Markel's very lengthy textbook. I realize that my analysis at several moments threatens to sound like a moral evaluation,

which is certainly not what I intended; I think Markel's is among the best textbooks available for technical communication teachers, and have been using it for several years. He clearly espouses many of the same Humanist values and goals that are held by his academic peers and colleagues in this field. Moreover, I think Markel's tendency toward Positivist conceptual systems comes from an acute awareness that academics do not always like to talk about—the most immediate concern of many students in a technical communication course, particularly majors from non-English departments, is the practical necessities of workplace writing. For many of them, humanist ethical concerns are nice, maybe even important—but they also need to know what a business letter is expected to look like. To some degree, preparing our students for the realities of the workplace (rather than creating social champions) is our mandate as teachers.

In any case, Markel is not alone in his use of mixed metaphors; these same conceptual slippages occur in many of the most widely known and used technical communication textbooks, to at least some degree. So as not to belabor the point, I will much more briefly talk about John Lannon's *Technical Communication*. I will also discuss Paul Anderson's *Technical Communication: A Reader Centered Approach,* which I think encounters the same problems faced by Markel and Lannon, but which addresses them remarkably differently.

Conceptual Metaphor in *Technical Communication*, 9th Edition

Lannon's textbook is, in many ways, a good substitute for Markel's. It is a strong introductory text, attempting to cover the widest range of issues possible in order to

prepare students for a career that will certainly involve writing. Like Markel, Lannon begins with a definition of technical communication.

> Instead of machines and physical goods, 'information' and ideas have become our most prized commodities… But information in itself has no intrinsic value—unless it is *usable*… Web sites, Intranets, and other resources—online and off—provide all sorts of *data*… But to translate this data into usable information, we have to sift through it and figure out what it means and how it applies. Then we have to build a persuasive but honest case for our interpretation and recommendations. Finally—so that others can use this material—we shape it into some type of *document*… Whenever you convey usable information to various people in various situations, you work as a 'technical communicator'" (p. 2).

The introductory material contains a familiar blend of conceptual systems. Lannon clearly emphasizes that ethics and social action are key aspects of technical communication, but the meat of his definition involves documents as information delivery devices. Information is a thing to be packaged, valuable in and of itself, waiting to be moved around in ways that create money. Moreover, in the remainder of the introductory material, Lannon follows Markel's habit of failing to distinguish between technical communication and technical documents—the terms are used interchangeably for the next several pages. The result is a discussion about things rather than actions, tending to divorce documents from the people who both read and write them. The writing process becomes a fairly mechanical enterprise. Consider, for example, Lannon's

assertion that “Technical Documents Strive for Efficiency” and his subsequent discussion of what efficiency means:

> …colleagues, customers, and supervisors read to *use* our knowledge. In the U.S. workplace, users of a document want only what they need; instead of reading from beginning to end, they are likely to use the document for reference. An efficient document saves time and energy… In any system, “efficiency” is the ratio of useful output to input. For the product that comes out, how much energy goes in? When a system is efficient, the output nearly equals the input. Similarly, a document’s efficiency can be measured by how hard the user works to understand the message. No one should have to spend ten minutes deciphering a message worth only five minutes. (p. 4)

In perhaps the most mechanistic passage I encountered in any textbook, Lannon chooses to discuss writing in terms of high school physics—perhaps an understandable metaphor considering that many of his target audience are college sophomores, but a metaphor which almost completely strips human agency out of the writing process. The quoted passage even contains its own encapsulated little ethical system, touting efficiency as a moral consideration. Information takes time to read, and time is valuable; ergo, inefficient information packaging wastes money, which is very, very bad.

Lannon’s chapter on audience analysis—“Delivering the Essential Information”—continues his tendency to mix the Humanist and Positivist. While the chapter title continues his favoring of the conduit metaphor, the text of the chapter

attempts to demonstrate the human constraints on communication. He talks about the existence of difference kinds of audiences, and the fact that they have different goals and purposes as readers (pp. 25 and 29). However, like Markel he tends to talk about documents rather than purposes—he categorizes different "levels of technicality" in terms of the documents that result from considering that audiences are different (pp. 27-29). The discussion of audience purposes and needs boils down to a one-page profile sheet (p. 33) that, like Markel's decision matrix, is assumed to capture the sum total of necessary considerations in order to proceed.

The chapter on ethics is, in contrast, a paragon of Humanist values expressed with little positivist competition. The "major causes of unethical communication" are expressed completely in terms of social influences and human interactions: groupthink, bias, and so on (p. 75 ff.). Lannon runs through a list of common "communication abuses" that are varied and suitably mundane to represent situations a student is likely to encounter, while also pointing out the ways that these situations tend to arise from conflicting loyalties to various parties engaged in the communication action (p. 81). In short, the chapter stands in sharp contrast to others in the book (and in Markel's book) that treat ethics as a mathematical set of variables in a rhetorically disengaged process; Lannon's is almost entirely about people and actions, drawing clear connections among communicators, social contexts, and the people to and with whom they write.

The chapter on style again takes a distinctively Positivist turn, consisting largely of lists of grammatical dos and don'ts relating to clarity and conciseness—clear pronoun reference, unclear modifiers, coherent word order, redundancy, weak verbs, etc. (p. 244

ff.). Like Markel, Lannon has moments when he addresses style as an ethical issue—in his discussions of passive/active voice (p. 250), euphemisms (p. 269), or of tone and personal bias (p. 279), for example—but the vast majority of the chapter glosses over the rhetorical and ethical issues associated with most of the stylistic considerations being talked about. Style is detached from its rhetorical contexts, instead serving only as an index of clarity and efficiency.

Finally, Lannon's chapter on the formal (in his case, "analytical") report engages in all of the by-now-familiar moves and reversals. Lannon clearly tries to talk about information in its social and ethical contexts, trying to get students to think about purposes, as when, for example, he reiterates that

> [t]o solve any problem or achieve any goal, you must first identify it precisely. Always begin by defining the main questions and thinking through any subordinate questions they may imply. Only then can you determine what to look for, where to look, and how much information you will need. (p. 607)

But he also tends to retreat away from contextual issues to talk generally in terms of efficient organization and clear presentation. Though the chapter occasionally hints that the report may be an exercise in persuasion, it is more generally presented as an exercise in data filtering (p. 608 ff.) that should be unbiased (p. 609) and orderly so that the conclusions follow naturally and precisely from the raw data that spawns them. The template for a report (and the sample reports) reinforce the ideal of the report as a static document model into which information can be plugged—despite Lannon's oft-inserted

variations on the reminder that "[t]his outline is only tentative. Modify as necessary" (p. 612). Guided only by a single model that follows a highly-prescribed pattern for outlining one specific kind of analytical process, one might reasonably wonder how students are to learn how to "modify as necessary."

Conceptual Metaphor in *Technical Communication: A Reader-Centered Approach*, 5th Edition

I chose to talk about Paul Anderson's textbook as my final example largely because it has been a popular text among lecturers and graduate students in my English department for the last several years, and is one that I recalled seriously considering using a few years ago. Since this was a fairly new edition, it seemed a good time to revisit the book. I confess I expected to find merely more of the same things I have been talking about in Markel and Lannon; much to my surprise, Anderson's text threatens to be an exception to my argument. Or rather, it takes such an openly Humanist approach that it reads very differently in significant ways. While Markel and Lannon talk about rhetoric and clearly try to work it into their texts, Anderson's "reader-centered" rhetorical approach becomes the guiding principle for his book's entire organization, and the Humanist values that underlie the principle are fairly clearly maintained throughout. One of the more obvious examples can be found in the book's first chapter; Anderson's definition of technical communication is remarkably different from the previous two examples:

> When you write at work, you act. You exert your power to achieve a specific result, to change things from the way they are now to the way

> you want them to be… The most important thing to remember about the "writing acts" you will perform at work is that they are social actions. Every communication you write will be an interchange between particular, individual people: you and your readers… Even when writing to a large group of people, your communication will establish an individual relationship between you and each person in the group. (p. 9)

Unlike the other two textbooks authors, Anderson emphasizes the social aspects of writing, as action (rather than neutral force) and as the result of human agency (rather than mechanical process) to effect goals that have unique relationships with readers' goals. Unlike Markel and Lannon, Anderson refrains from talking about specific kinds of technical communication documents—in fact, in the entire first chapter, he makes very few references to particular documents, focusing instead on the purposes of writing and the dynamic nature of interaction with readers (p. 13). His list of the characteristics of technical communication reads much like Markel's, except that Anderson's begins with the idea of rhetorical purpose (p. 5), broadening beyond Markel's "problem-solving" to include a wider array of investigatory and persuasive activities. Similarly, where Lannon talks about "efficiency," Anderson highlights "persuasiveness" as a key characteristic of effective technical communication. This is not to claim that Anderson completely avoid Positivist metaphors; on the contrary, he, too, talks about efficiency and clarity at moments (e.g., p. 5), but to a noticeably lesser degree than either Markel or Lannon. Anderson's Positivist moments are largely of the conduit metaphor variety, and

tend to be overshadowed by his general success at staying away from metaphors that create tension with his focus on rhetoric and persuasion. All of these moves in the first chapter serve to deemphasize the nature of technical communication as physical artifact, and instead highlight human interaction and dialogic exchange as the central tenets of the books theoretical *apologia* for studying acts of technical writing.

The first chapter also begins Anderson's practice of having a discussion of ethics in each chapter; unlike the first two texts, this book has no separate section on ethics, but instead incorporates a discussion of this subject into every other chapter's treatment of theory or application. As I noted earlier in my discussion of Lannon, the treatment of ethics is not so much an instance of conceptual metaphor at work as it is a natural result of the author's conceptual metaphors about technical writing; Anderson does not portray ethics as neat or tidy or mathematical, or give students a simple checklist of behaviors that always do or do not count as ethical. Instead, he tells them that his goal is "to enhance your sensitivity to often subtle and difficult-to-detect ethical implications" that deserve consideration (pp. 18-19), and then proceeds to raise these issues in each chapter ways that do not always have easy answers. Whether or not this is an effective way of teaching ethics I cannot say—but it certainly sits well with Anderson's Humanist values.

Anderson's chapter on audience analysis looks much like the others we have examined in terms of its organization: overall writing purpose, audience characteristics, writer constraints, etc. The chapter even ends with the familiar audience analysis checklist. However, subtle differences abound. Whereas Markel defines different types of writing purposes in terms of how a document should look for a given audience type

(technicians like short sentences, experts can read long sentences with jargon, lay readers require more obvious organizational patterns, and so on), Anderson talks about audiences in terms of the kinds of actions they wish to perform (decision-makers, advisers, and implementers) and the kinds of questions they are likely to ask. For example, an advisor might ask “Did you use a reasonable method to obtain your data?” or “What kinds of problems are likely to arise?” while an implementer might ask more specific questions like “What is the purpose of the actions you are asking me to perform?” and “How much freedom do I have in deciding how to do this?” (pp. 62-63). By having students think about their writing in terms of these questions, Anderson avoids creating the impression that there is any one right way to address a given audience other than responding to their needs at a specific moment. His chapter checklist is far more open-ended than either Markel’s or Lannon’s, relying less on specific lists of variables that could affect how a reader approaches your writing (where she went to school, her previous job responsibilities, what she had for breakfast) than simply on general questions that guide students through a series of issues that should be considered for most audiences (pp. 72-73).

The chapter on style strays inevitably into Positivist territory, but Anderson in several ways cordons off the more traditionally mechanistic treatments of language from his discussions about the reasons these grammatical/syntactical choices are important. He divides the chapter into three general groups of issues—guidelines for creating a voice, guidelines for constructing sentences, and guidelines for selecting words. Anderson begins with the section on voice, in which he discusses, among other things,

the effects of tone on ethos (p. 240), the ethical implications of writing in bureaucratese (p. 241), the power roles that a particular voice creates for both reader and writer (242), and the dangers of perpetuating unconsidered stereotypes (p. 243). In short, he begins by discussing the ethical implications of style at some length. Later sections of the chapter provide more concrete grammatical advice, but always presented in the service of a specific goal. For example, in a section labeled "Put the Action in Your Verbs," Anderson explains that action-centered sentences are preferable because they are "briefer… more emphatic, and lively" as well as easier to read (p. 246); he then gives a checklist of ways to keep actions and verbs together, such as avoiding expletive construction or heavily nominalized sentences. Style considerations arise out of thinking about the requirements of the reader/writer interaction, rather than as variables for manipulating that interaction toward predictable ends.

The textbook's final major section includes all of the chapters on application—putting all of the rhetorical theory to work writing specific kinds of documents. It is only here that serious conceptual tension begins to appear, as Anderson chooses to call the section "Superstructures" for building each kind of document (p. 455). While this particular metaphor (which he repeats through this and later chapters) tends to create the impression that information is an objective thing to be plugged into appropriate slots for predictable results, Anderson also maintains his habit of talking in terms of dialogic interaction with readers, and also mirrors Lannon's method of discussing each section of a document in terms of the questions it answers. There is no list of the things that must be in each section of the report—only a list of questions that each section should answer.

Following this chapter is a “reference guide” (pp. 473-532) that lists the more complex superstructures for specific kinds of reports (empirical research, feasibility, and progress). Even in these sections, however, Anderson manages to balance out his mechanical metaphor with a methodical reiteration of all considerations in terms of answering reader questions.

Conclusion

My goal in this chapter was not to argue which of these books is “better” or to claim that Positivist values must be eradicated from textbooks. Rather, I simply wanted to demonstrate two key points:

1) Writers with the clearest of Humanist intentions slip into Positivist treatments of communication. It’s virtually unavoidable to use the conduit metaphor when talking about writing, but I’m referring here to the sort of large-scale slippages that have Markel alternately talking about social equity and corporate profits as the technical writer’s natural goal.

2) Positivist language undercuts Humanist values. Period. It’s impossible to create social advocates or agents of social change while preaching monetary profit or corporate success as the highest good.

Both of these points are amply evidenced in all three textbooks, despite the fact that the analyses have been quite brief and somewhat limited in the choice of topics that we examined. There is a wealth of metaphor to be uncovered in each author’s discussion of document design, or in the differences between their treatments of reports and proposals, or their chapters on the use of graphics. However, even these quick examinations have

demonstrated the conceptual tensions that make technical communication textbooks a confusing jumble of ethical or value systems for students and teachers alike.

During the semester in which I worked on this chapter, I used Markel's text in the technical writing course I was teaching, and I decided (literally as the semester was beginning) to make an effort to move toward more consistently Humanist metaphors in my teaching. I had no specific method; it was merely an informal effort to change my ways. I resolved to guide my students through thinking about audiences in more robust ways than the checklist in their book. I attempted to talk about ethics throughout the course, rather than just having them read the single chapter on the subject. I attempted to discuss stylistics as a natural outgrowth of thinking about audience and ethics, and not as an act of mere polish when the writing was finished. I decided to teach particular kinds of documents as rhetorical actions rather than boilerplate models, acts of writing that have presence and purpose in a complex social milieu. Most importantly, I set out simply to pay attention to my own metaphors as I spoke to students about the work they were doing, to make sure I was not undercutting my own message.

In most of these undertakings, I failed—rather spectacularly—due to a variety of considerations that bear considering. Perhaps the greatest hindrances were my own habits of thinking; I've taught the course numerous times, and have developed rather entrenched ways of approaching the subject that are completely, utterly incompatible with the Humanist values I was trying to sustain. My calendar called for a grim march through the chapters on technical communication theory, audience analysis, and job application materials so that we could get to the first project—an exercise in writing

resumes and cover letters in an effort to induce human resource managers into setting up an interview. The rest of my projects were similarly geared toward making my students good corporate prospects; the pace of the course left little time to linger over things like ethics, and I found myself working it into discussions haphazardly. My students—non-English majors—had no vocabulary for discussing style, and I didn't have the time to teach them enough that they could de-nominalize their sentences or reliably gauge their own tone and its implications. And when it came to discussing kinds of technical documents, giving lists of required content for each section of reports or instructions turned out to be the easiest way to move my students toward a respectable end product. My textbook, my schedule, my projects, and my former approaches to the subject all worked against my lofty goals in fairly thorough ways.

But Anderson's textbook demonstrates that it *is* possible to talk about technical communication in ways that move away from Positivist values to Humanist ones. In the concluding chapter of this dissertation, I will talk briefly about ways our profession might want to begin thinking about this move.

CHAPTER V

CONCLUSION

In the time since I began working on this dissertation, I have become a practicing technical writer. After several years of teaching college sophomores and juniors, I now find myself working for a state agency, producing training materials for various emergency management courses offered to states and the federal government. "Producing materials," you'll notice; one slips easily into that sort of language around here. Our texts are neither bodies nor voices, and I'm fairly certain several of the program managers would frown upon the texts having agency. My coworkers are largely ex-military types who speak in a curious and ruthlessly streamlined patois of acronyms, an efficient language stripped down to absolute referents. Our books are deliverables, our readers are clients, and our courses are products that are either valuable or not to government jurisdictions.

Of course, one of the things that drew me to this particular job was the social relevance of its subject matter. Last week, I finished work on a book for public information officers concerned with creating, maintaining, and executing emergency plans to deal with the media and the public in the event of a large-scale crisis. Later today, I'll be working on a book that helps smaller jurisdictions access information about state and federal resources available to them in the event of an emergency. Unlike many other kinds of technical writing that are more openly consumer-oriented or transitory in nature, this work feels like it is being used by real people for important purposes.

But… I am a middleman on the journey of ideas between author and course participant, a living instance of the conduit metaphor. I have no say in the original writing of the document, and have little authority to suggest changes that would significantly alter a document's relationship with its readers; my place in the grand scheme of things is to sit in an office "tuning up" pre-written texts so that they will be comprehensible, usable, and, ideally, pretty. My supervisor (a grad school friend who is also finishing his Ph.D. in rhetoric) has been talking about moving to single-sourcing as a way to make our production of texts better, faster, and more efficient. In short, my environment is so completely awash in Positivist values and assumptions about communication that the most avid Humanist would have little hope of making a dent. I'm not even sure what an appropriate dent would look like. Sometimes our documents really kind of are just things, objects we produce because we are required by law or by management, rather than because we think anyone will read them; at other times, I can envision giving Dragga and Voss free run of the place, commissioning them to slap clip-art, lumberjacks and all, on our graphics in an effort to promote deeper ethical discussion.

So for me, at least, this dissertation is not a random act of linguistic deconstruction; the conceptual differences that I have been examining have real consequences for both industry (as technical communicators struggle to remain necessary in a corporate environment that has its own social values and economic constraints) and academy (as it struggles to remain relevant to those who do technical communication for a living). The most recent (August 2004) issue of the STC's

Technical Communication shows that that these issues won't be going away any time soon; all of the articles are about the same subjects (information management, marketplace influences on pedagogy, single sourcing, XML, and structured content production) that we have seen in our look at journal articles back through 1996.

The question, then, is what this dissertation contributes to the larger discussion. Saying that conceptual tensions exist in localized uses of language is neither novel nor particularly helpful as a stand-alone activity. In the case of technical communication theory, we already knew that tensions have existed; I have merely tried to point out specific moments of tension and tease out some of their implications. But even identifying causes of tension is insufficient; the more important question concerns what we in the academic community should do about these tensions. I think there are three areas that demand our collective attention: our textbooks (how we codify our experience), our approaches to classroom instruction (how we relate our experience to new generations of technical communicators), and our value systems themselves (how we think about what we do).

First, I think we need to give more thought to our technical communication textbooks—and, by extension, the other theory-based texts we author—and the practices that they model. The texts by Markel and Lannon examined in the previous chapter are thorough, thoughtful books that present a comprehensive body of information suitable to arm students for life in the corporate environment; while they do not always live up to the Humanist values embraced by their authors (and embodied in the conceptual metaphors favored by their authors), these texts can be helpful guides through the tricky

necessities of the standard writing genres like reports and proposals. Moreover, the vast majority of our students come from disciplines other than English, and there are real limitations to how much they know about rhetoric and grammar when they get to us; we can only realistically be so ambitious in our efforts to increase their facility as writers. I once succumbed to such ambition, assigning Joseph Williams' *Style: Ten Lessons in Clarity and Grace* as a supplementary text in a sophomore technical writing section, with predictably disastrous results; I spent more time teaching basic grammar than anything else that semester, and the effort we made trying to work nominalizations out of our sentences was out of all proportion to the course's rhetorical objectives. In terms of what the students already know when they come to us, Markel and Lannon are far better suited than Williams to giving students an introduction to getting by in the workplace.

But I also think Anderson's text models a number of excellent practices that show we really can balance a Humanist agenda with practical advice about writing; he not only uses metaphors of agency and presence to encourage students to think about their writing in rhetorically sophisticated ways, but he also lets those metaphors guide much of his own writing, leading to a text that actively embodies the values he advocates. He tells students that writing is always about a specific purpose, and then leads them through exercises that encourage them to think about the needs of other humans, rather than just about concrete formats and expected document features. He tells students that ethics (as socially responsible practice, rather than simply abstract theoretical hand-wringing) is a central component of workplace writing, and then

encourages their awareness of ethical issues throughout the text, rather than in a single limited chapter. He does, by the end of the text, revert to concrete models of standard document templates, but only after spending several hundred pages preparing students to think about their writing as an extension of themselves in a grand conversation with their readers. Reporting, proposing, and instructing remain rhetorical activities in Anderson's textbook, from metaphor all the way through practice.

Based on Anderson's successes, we might encourage other changes in the ways textbooks address certain aspects of writing. Style is one area we have discussed at some length; it is typically a segregated subject in textbooks, separated from discussions about rhetorical purpose or ethical practice in ways that do not encourage students to see style as an integral aspect of communication. Instead, textbooks use language and metaphors that tend to encourage thinking about stylistics as a mechanical issue, and stylistic revision as tuning up or polishing a text artifact; page after page of generic "do this" and "don't do that" can completely empty any discussion of style of its Humanist potential. Why not treat style in the same way that Anderson treats ethics? Rather than dividing it off as an afterthought, an enterprising textbook author might instead incorporate its discussion throughout a textbook, keeping style with audience, purpose, and social responsibility as the central considerations in a Humanist conceptual system.

There are numerous other issues in technical communication textbooks that would benefit from some metaphorical rearticulation. In my previous chapters, I did not take the time to examine the metaphorical differences in the ways academics and practitioners approach graphics, for example, but we did see in the opening examination

of Dragga and Voss's article about the ethics of visual display that there are some hard and fast ideas about graphics that remain thoroughly entrenched, even among academics. It would be worthwhile to explore some of our metaphors about visual rhetoric in greater detail, as a means of rethinking how we encourage students to include graphics in their writing; an example of a textbook that handled graphics in a more Humanist fashion was Killingsworth and Palmer's *Information in Action*. Much like Anderson, Killingsworth and Palmer organized their text almost entirely around rhetorical purpose rather than standard formats. Their chapter on graphics was particularly anomalous; rather than teaching students the mechanical different between producing a pie chart or a statistical graph, they articulated a variety of rhetorical functions that can be served by various kinds of graphics. By showing students the functional differences between summarizing, previewing/reviewing, motivating the audience, etc., they encouraged thinking about text and graphics in closely linked ways. Information in Action was the book I used teaching my first technical writing course; though it is now out of print, I have not found another textbook that has made me throw out my lecture notes for its chapter on graphics.

We might have similar discussions about document design, collaborative writing, the writing process, document organization, or any of the other subjects typically addressed in textbooks. We might even rethink some of the more basic aspects of textbook organization, with an eye toward, for example, a case study approach that leads students through all the aspects of writing while working on a particular document toward a particular end. For example, Charles Kostelnik and David Roberts' *Designing Visual Language*, while not entirely designed around case studies, does make excellent

use of extended projects and examples. His first several chapters take students through a series of choices related to one particular document, bringing into sharp focus an array of issues about a document with which student readers become quite familiar.

Second, along with our textbooks we need to think about the technical communication classroom. This is not to say that we haven't already been thinking about it; one would be hard-pressed to find a journal issue in recent years that makes no reference to pedagogical issues in our field. Rather, we need to be aware how our conceptual metaphors about communication and writing play into the values we assign to classroom methodologies and pedagogical goals. One of the articles from the most recent *Technical Communication* is Barbara Giammona's "The Future of Technical Communication: How Innovation, Technology, Information Management, and Other Forces Are Shaping the Future of the Profession," which reports the results of a survey she conducted among "influential practitioners" and educators about issues that will be important to technical communicators in the near future. Consider some of the quotes from her respondents:

> You don't need a degree in technical writing. There is not that much to learn. Get a degree in computer science or engineering and take a class in technical writing. (p. 356)

> If I were creating an academic program, it would be half in the engineering or computer science department and half in the writing department. [Then] technical writers would have as much *technical*

> writing as possible. To be viable and above average, you need to have business savvy, or get some industry experience, or have a technical background. The days of the arts major going into technical writing are numbered. (p. 357)

JoAnn Hackos, former president of the STC, suggests to Giammona that she would "like to see the training programs be much more business oriented than they are today," and Karen Schnakenberg, director of Carnegie Mellon University's professional and technical writing program, describes how her department is moving to work with the University's School of Design so that "[w]riting is taught from a design perspective—writing as a design process" (p. 357). What Giammona's survey shows is a large-scale, energetic, slightly desperate movement of academic programs to embrace "technologies and changing business models affecting our field" (p. 358). At the very least, her respondents all seem to agree that current practices are behind the march of progress, and tend to be dangerously static.

My own position is more cautious. We clearly need to be preparing our students to get jobs, but I think it is possible to embrace that necessity while still keeping our Humanist values intact. Another article from that same issue as Giammona's, "Fitting Academic Programs to Workplace Marketability: Career Paths of Five Technical Communicators" by Loel Kim and Christie Tolley, offers a balanced survey of the kinds of programmatic changes that can make students more marketable. However, Kim and Tolley do not satisfy themselves with mere marketability; they focus on practices that incorporate the values of both industry and academy, suggesting, for example, that

technical communication students would benefit from more technology training incorporated into traditional, existing courses (p. 379). Kim and Tolley also point to studies that show service learning, too, as a way for students to discover the necessities of real world practice while also encouraging them to participate in the life of the community in socially responsible ways (p. 380).

Even for those of us who do not have the luxury of coming from a large, well-funded program in technical communication, very basic practices like those suggested by Kim and Tolley are well within reach. My own experience is limited to Texas A&M University, where we have no technical communication major and our students are primarily non-English majors fulfilling a writing requirement; while there is a shortage of faculty and graduate students who have academic credentials in technical communication, let alone workplace experience, we do have computer lab facilities that allow technical communication instructors to explore ways to marry traditional training in rhetoric with exposure to technology and software. And service learning is an invaluable option available to schools of any size with even the most limited of resources.

Finally, we need to recognize the conflicts inherent in our value systems. My analyses in the previous chapter threatened to become somewhat shrill as I pointed out, for example, Markel's equation of style with mere clarity and conciseness; yet despite the fact that I might like him to talk about style in more complex ways, Markel's focus on clarity and conciseness does present some important ideas in ways students can

understand. Conversely, the academic camp's zeal often causes us to ignore or misunderstand some of the nuances of workplace writing.

My point is simply that, in order to practice technical communication, or study it, or teach it, it is likely that we neither have to give up humanist social values nor ignore the needs of industry. We simply have to be aware of where those values and needs conflict, and find ways to help them coexist. The conceptual metaphor theory that formed the basis for my analyses in previous chapters is simply one way among many of looking at our language and practices and trying to figure out why we talk and act like we do, and discovering how we might begin to think about talking and acting differently. If we do not engage in this kind of critical analysis, then, for technical communication theory, at least, industry and academy will continue to spiral into mutual irrelevance.

NOTES

Chapter I

[1] Odell and Goswami's *Writing in Nonacademic Settings* (1985) was the first such anthology in which scholars such as Jeanne Halpern, Lester Faigley, and David Dobrin explored writing practices in the workplace, the effects of technology on composition, rhetoric and professional discourse, and workplace stylistics. It was a serious attempt to show that workplace practice was vastly different from academic writing, and that some attempt to accommodate those differences would be vital for the successful education of students who would have to participate in those practices. Fearing and Sparrows' *Technical Writing: Theory and Practice* (1989) continued this endeavor with chapters written by established composition and rhetoric scholars, several of whom were published in Odell and Gaswami's anthology as well, examining issues like document development, collaborative writing, and usability testing in industry, placing more emphasis on the ways that instructors might take these issues into consideration when designing writing courses. Scholarship in the subsequent years has focused most heavily on ethnographic studies of workplace practice as the ideal way to bring to the academy the most pressing issues and needs of industry. Works like Carroll's *The Nurnberg Funnel* (1990), a detailed study of the benefits of minimalist computer instruction, and Spilka's *Writing in the Workplace* (1993), a collection of articles specifically exploring the application of theoretical writing issues in various industries, have become models for the kind of ethnographic studies that are carried out with increasing frequently today.

[2] Miller's use of the term "positivism" is somewhat unusual, not necessarily in line with the philosophical tenets of logical positivism. However, her use of positivism as a contrast for the "humanistic" values espoused in her article has become commonly accepted in technical communication theory.

[3] Richards is usually credited with renewing modern interest in metaphor in the 1930's; though he discussed metaphor only as part of a larger treatise on philosophy, he made several observations and contributions that remain central in modern work on the subject. First, Richards noted that metaphor is ubiquitous in language, pointing out that "we can't get through three sentences of ordinary discourse without it" (p. 50). Second, he developed terminology for separating the parts of a metaphor: the "tenor" (the underlying idea or principle subject) and the "vehicle" (the word or phrase that carries the tenor). While he still limited metaphor to a two-part phenomenon, Richards opened the way for thinking on a scale greater than the word-level.

[4] Stephen Pepper's *World Hypotheses* (1942) is among the first texts that argues a link between metaphor and archetypal thinking. Pepper suggests that there are four "root metaphors" that underlie all philosophical thought: 1) Formalism, arising out of Platonic Idealism, assumes that the world is full of things that seem to be alike; things are divided

into categories and types, and there is some notion of transcendent forms. 2) Mechanism, with its variations of Naturalism, Materialism, and Realism, assumes that the universe is a grand machine behaving according to inviolable rules of which we may or may not be aware; the beginning of the universe is irrational and based in chance, but everything since that beginning is the inevitable result of finite, comprehensible processes. 3) Contextualism, finding its modern adherents in Peircean Pragmatism, operates on a radical notion of change, and denies a mechanistic force guiding events or giving them structure. 4) Organicism explains reality as the aggregate of fragmentary experience with its myriad connections and interactions that combine to form a new whole; this new whole was inherent in the fragments and both transcends the differences and preserves the original experiences as distinct (p. 283). Pepper actually talks very little about the nature of metaphor in his argument, and he draws no ties between these root metaphors and their practical function in everyday language use. Clearly, however, his work influenced both Black's discussion of archetypes and Lakoff and Johnson's explorations of conceptual metaphor.

[5] Raymond Gibbs outlines a number of additional subdivisions and distinctions that linguists now make within Black's original three views of metaphor; these more refined variations generally suffer from the same problems raised by Ricoeur. Gibbs also lists several alternative (and not widely accepted) theories of metaphor proposed in the decades after Black's publications. Donald Davidson (1979) has argued that metaphor is simply a special case of literal language, relying on novel uses of literal words; this "metaphor-without-meaning" view suggests that metaphors are not functions of language at the semantic level, but rather at the level of language use. Similarly, John Searle (1993) has suggested that metaphors constitute their own special type of speech act, much like commissives or directives, with their own unique illocutionary force and felicity conditions. Neither view has maintained much of a following; for more on these alternative accounts of metaphor, see Gibbs (1994).

[6] Systems for notating metaphor differ widely. I follow Lakoff and Johnson's (somewhat visually jarring) preference for marking metaphorical concepts in small capitals.

[7] Or rather, has not been seriously challenged. There have been only two objections raised to the basic points of CMT. The first comes from cognitive psychologist Gregory Murphy (1996), who argues that Lakoff and Johnson have built a shaky theory by basing their conclusions primarily on linguistic evidence; people are unreliable when describing how they think about or understand metaphor, and, without other forms of evidence, it is just as easy to argue that learned metaphorical systems in language are the cause of conceptual systems, rather than vice versa. He does not dispute the conceptual nature of metaphor, but suggests that conceptual systems could be tested more accurately by examining other, more readily quantifiable cognitive processes such as memory and problem-solving rather than linguistic use.

The second challenge to CMT comes from by Michael Haley (1997), who argues that Lakoff and Johnson have not provided a sufficient explanation of how metaphor is grounded in bodily experience; he attempts to help alleviate that weakness in the theory by drawing on the works of Charles Peirce to show how such a relationship between conceptual systems and bodily systems might be more adequately explained.

[8] Not to be confused with Lakoff and Johnson's one-way account of conceptual mapping.

[9] See also Gross (1996), who briefly discusses conceptual paradigm shifts (both by overthrow and by incorporation) as part of his lengthier argument on the epistemic nature of rhetoric in scientific discourse.

Chapter II

[1] As I develop my argument, I, too, am forced to contend with conceptual metaphor. The notion of "mapping" or "modeling" or "graphing" a conceptual system leaves me in the slightly embarrassing position of participating in the physical object metaphor as thoroughly as the texts I analyze above. "Tracing" is similarly loaded, but with the idea of intersecting meanings I am trying to highlight a different metaphor: that of the network or web, which I will discuss in some detail in the next chapter.

[2] Conceptual metaphors tend to bleed into one another, and are thus somewhat difficult to categorize; the hierarchical approach created by Lakoff and Johnson is the closest thing to a standard for outlining conceptual metaphors, and most linguists follow them (with minor variations). Lakoff's "Master Metaphor List" at the University of California-Berkeley's Cognitive Sciences web page identifies and offers everyday examples of loose hierarchies of metaphors that structure conceptual systems in English. While Lakoff categorizes differences and makes distinct groupings, Barnden has compiled a "databank" of conceptual metaphors that addresses their interrelationships among each other, rather than sharp divisions. In both cases, the metaphors are grouped according to hierarchies, with general metaphors occupying the top of the pyramid and branching off into simpler and more specific instances of related metaphors.

[3] It is worth noting that Barnden uses hypertext much more extensively than Lakoff in the presentation of his data. While neither makes full use of the technology, Barnden is better able to convey the subtle links and relationships among conceptual metaphors without implying a rigid pyramid structure.

[4] Lakoff would likely suggest that one of these three is a root metaphor out of which the other two develop—probably IDEAS ARE PHYSICAL OBJECTS. In this particular instance, I prefer Barnden's looser methodology of linking among major groups of

metaphors; while Barnden's mapping produces sloppier diagrams, it is more clearly able to represent the complex and convoluted interrelationships in our conceptual systems.

Chapter III

[1] See *Landmark Essays on Voice and Writing* (1994), edited by Peter Elbow. For a recent textbook that puts into practice a very Elbow-esque conceptualization of voice and social influence, see Tom Romano's *Crafting Authentic Voice* (2004).

[2] Consider, for example, Joseph M. Williams *Style: Ten Lessons in Clarity and Grace*. The premise he articulates in the opening chapter is that "[i]t's good to write clearly, and anyone can" (p. 4). While he suggests that the goal of clear style is the support of a "diverse and democratic society," his focus on clarity and the transmission of meaning seems to actively embrace the conduit model of communication. His method for teaching clear style is the dissection of sentences and paragraphs into their component parts—focusing, literally, on the mechanics of grammar.

[3] For more on the plain style as a consequence of scientific writing, see Morris Croll's *Style, Rhetoric, and Rhythm*, and Richard Jones' *The Seventeenth Century*.

[4] It is important not to confuse "complex" with "complicated." Ken Baake (2003) has written an excellent analysis of the notion of complexity in science writing, and he points out that while we generally use complexity to describe a thing that has many facets or is "difficult to unravel" (p. 179), in its technical sense as an area of academic inquiry, complexity refers to an overarching theoretical phenomenon that explains the behavior or actions of certain kinds of systems in all spheres of activity and disciplines. It is a sort of meta-science or meta-inquiry that is truly pandisciplinary in scope and applicability.

Chapter IV

[1] For example, the 6th edition of *Technical Communication* was the first of the most well-known textbooks to employ full color throughout the text, as well as to have a companion web site. Lannon, Anderson, and numerous other authors also incorporated these changes into their texts in the following editions.

[2] See, for example, *Ethics and Technical Communication: A Synthesis and Critique* (2000), in which Markel outlines the application of classical and modern ethical theory to communication issues.

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Professional Experience

2004-Present National Emergency Response and Rescue Training Center, Texas Engineering Extension Service, College Station, TX.
Technical Writer

1997-2004 Texas A&M University, College Station, TX
Assistant to the Director of Technical Writing Programs
Graduate Instructor
Technical Communication (introductory and upper division)
First Year Composition
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Conference Presentations

2004 Conference on College Composition and Communication
"Bridges, Conduits, and Machines: Conceptual Metaphor in Technical Communication"

2002 Conference on College Composition and Communication
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Academic Service

2002-2004	Textbook Adoption Committees for Technical Communication, First Year Comp. (Handbook), and First Year Comp. (Rhetoric/Reader)
2001-2002	Representative to the Department of English Graduate Committee
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